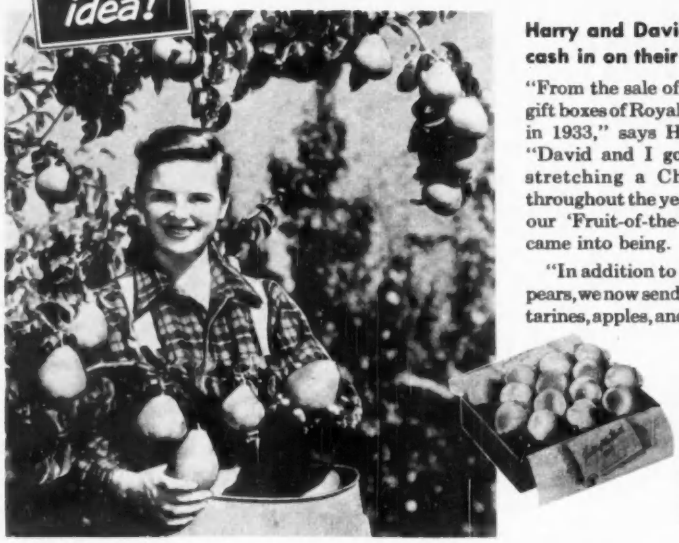
American FRUIT GROWER

APRIL • 1950

Smart idea!

Orchard booms into a $4,000,000 business!



Harry and David's unique Bear Creek Orchards cash in on their "Fruit-of-the-Month Club" idea!

DAVID HOLMES HARRY HOLMES

"From the sale of a modest 467 gift boxes of Royal Riviera Pears in 1933," says Harry Holmes, "David and I got the idea of stretching a Christmas gift throughout the year. That's how our 'Fruit-of-the-Month Club' came into being.

"In addition to Royal Riviera pears, we now send Royal Grapefruit, Oregold Peaches, nectarines, apples, and lots of other rare fruits and delicacies."

For Christmas alone, Harry and David handle over half-a-million shipments from their Medford, Oregon, plant. Throughout the year they ship close to one million gift packages. "This takes a whale of a lot of hauling," says Harry, "and that's why we appreciate the reliability and economy we get from all of our Ford Trucks."

Smart move!

Ford Truck economy cuts hauling costs 14%!

"We keep an eagle eye on truck costs, and our records show us that Ford Trucks have cut them as much as 14% per package delivered," says Harry Holmes.

"That means we put less into Ford Trucks in the way of expenses for gas, oil and repairs. And we get more work out of them because of their power and because we don't have to be too careful about loading them with a little extra."

HERE'S WHY AMERICA'S NO. 1 TRUCK VALUE WILL DO MORE FOR YOUR DOLLAR!

SAVE GAS. Ford Loadomatic ignition regulates spark, keeps it *right* for both engine speed *and* load.

SAVE OIL. Ford aluminum alloy pistons are cam-ground for oil-saving fit at operating temperatures.

TRUCK-OF-THE-MONTH at orchard spraying time is this rugged Ford Model F-1 Stake. Hardwood platform floor is steel-framed. Stakes are removable. Load length is 80 in., width 67 in. Cab has adjustable lounge-type seat, Air Wing ventilators in door glass. Rear axle is low-slung hypoid type. Four shock absorbers are standard. And Ford gives you a choice of V-8 or Six engine!

SAVE MONEY. Choose from two V-8 and two 6-cylinder engines—Over 175 models up to 145-h.p. Big Jobs—Double Channel frame for big load capacity—Engine-top setting of accessories for easier maintenance—Bonus-Built reserves of strength and power for long life.

Ford Trucks Cost Less Because—

FORD TRUCKS LAST LONGER

Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer!

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Scab is no problem here!

Profits grow on trees—for growers who have long depended on Dow for effective materials to fight apple scab and other enemies of top fruit production. Men who make the most of their orchard investments know that Dow insecticides and fungicides can be relied upon for protection of foliage and fruit from dormant season to harvest time.

"Mike" Sulfur—the ideal, noncaustic, wettable sulfur, more than 95 % sulfur of microscopic fineness—has an important place in *your* spraying schedule. Many growers use it exclusively in combating apple scab and brown rot. Three pounds of lime per 100 gallons of water increase the efficiency of "Mike". Dow Dry Lime-Sulfur—preferred by many growers in preblossom sprays—disperses readily in cold water, imparts superior finish to fruit.

Parathion-15%-Wettable and Ferradow

Parathion-15%-Wettable is a powerful insecticide formulation that has shown excellent results in control of mites, woolly aphid, mealy bugs and red-banded leaf roller. *Ferradow* is Dow's newest organic fungicide that has proved itself in leading orchard sections as an effective control of scab, brown rot and other fungus diseases. Ask your dealer or write to Dow for full information on these aids to better fruit.

"Mike" Sulfur
and
DOW DRY LIME-SULFUR

Agricultural Chemical Division

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

USE DEPENDABLE DOW AGRICULTURAL CHEMICAL PRODUCTS

WEED AND GRASS KILLERS • INSECTICIDES • FUNGICIDES
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GRAIN AND SOIL FUMIGANTS • WOOD PRESERVATIVE

DOW

CHEMICALS

INDISPENSABLE TO INDUSTRY AND AGRICULTURE

SOCK YOUR BIG DISK SPOOL-DEEP AND THE D2 WALKS OFF WITH IT!

Here's on-the-job proof of what orchard performance to expect from your "Caterpillar" Diesel D2 Tractor — for deep-working heavy soil; putting a cover crop "away"; pulling a big sprayer over steep grades.

This Diesel D2 is pulling a big (20-23") heavy-duty Rome disk. Note that the serrated blades are cutting almost spool-deep in heavy soil. Yet the D2 has ample power and traction to deep till 20 acres in 10 hours.

The outfit is preparing centers of a young orchard to raise a field crop, for Edward Swisher, Jr., Levels, West Virginia. Even doing this tough work, the D2 burns less than 2 gallons of non-premium fuel per hour!

On the deep-cushioned seat of a "Caterpillar" Diesel Tractor, you do your power jobs to your standard, and on time. You command all-soil, all-weather traction! You save 60% to 80% on fuel expense. Many a fruit-growing "Caterpillar" Diesel Tractor that has bought itself in fuel dollars saved *is still at it!*

Ask your "Caterpillar" Dealer to demonstrate what profit advantages this modern Diesel power would give you.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

Here's the new way to get better fruit set, better color, better growth for your apple crop: Just spray nitrogen on the foliage in the form of "NuGreen." Experiment station tests and grower results over a period of six years prove that it works well. And it saves labor and money in the bargain.

Apples—"NuGreen" applications, started at early pink blossom stage, help trees with light bloom to set a normal crop. Applications started at petal fall help reduce set on heavy blooming trees so that apples will reach good size. Total amount of nitrogen is easily controlled so fruit matures to high color.

And cost of application is little or nothing, since "NuGreen" is applied in the regular pest control sprays. "NuGreen" mixes with pest control chemicals, does not burn foliage at recommended concentrations, and is harmless to spray equipment. With "NuGreen," no nitrogen is tied up in dry soil, none is lost through leaching rains.

Other crops—Preliminary trials indicate possibilities for spray applications of "NuGreen" to other deciduous fruits, berries and small fruits, truck crops, and even certain field crops. Recommendations for these other uses will be made as soon as thoroughly proved procedures are available.

Also Spread "NuGreen" on the Soil

Ideal for application direct to soil, too. Concentrated 44% nitrogen. Readily available to plants yet resists leaching.

How to use "NuGreen"—*Be sure to ask your fertilizer dealer for free booklets giving details, including proper concentrations and timing. Ask him for a copy of "Du Pont 'NuGreen' for Apples," or write to Du Pont, Nitrogen Products Section, Wilmington 98, Delaware.*

DU PONT
NuGreen®
FERTILIZER COMPOUND
...Through Chemistry

APRIL 1950
VOL. 70 No. 4

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THIS MONTH'S COVER

"For, lo! the winter is past" and spring has come, at last, to the fruit grower. Promise of a bountiful harvest is evidenced on this month's cover of orchards near Salem, Ore. Photo by Gifford.

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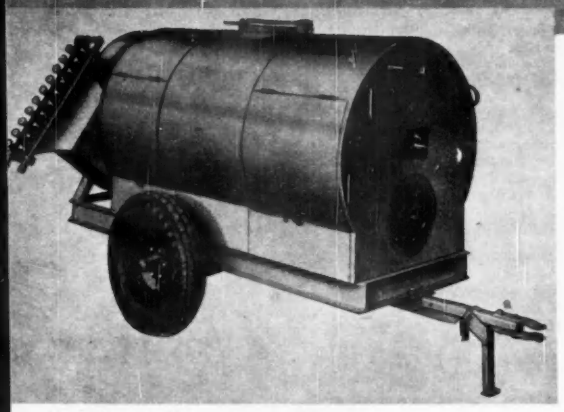
ORCHARD PROVEN SPRAYERS PAY OFF

John Bean sprayers give you sturdy orchard-proven equipment at the lowest prices possible, then you get the additional savings of complete crop protection and long years of trouble-free service. Don't gamble with your crop — give it the John Bean protection it deserves.

YOU choose Your Spraying Method

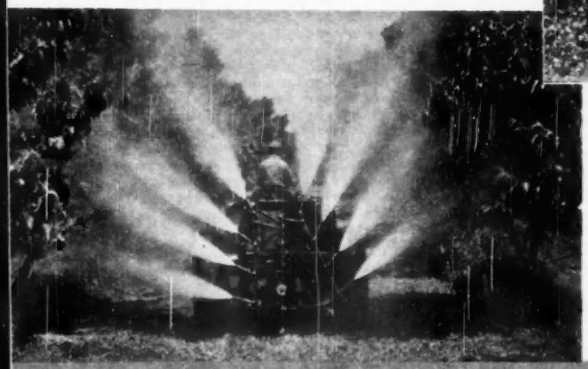
John BEAN Orchard-Proven Equipment will make your method a success



Lowest costs, full crop protection and top efficiency are yours with John Bean equipment, regardless of the spraying method that you prefer. *Speed Sprayer* is the standard of performance for the fast, complete coverage with dilutes or concentrates. *Low-Boy* spray mast with one of the orchard-proven John Bean high pressure sprayers brings conventional applications to new highs in speed, labor saving, and cost cutting. The new *Auto-Mist* is your most efficient answer to the application of semi-concentrates or concentrates. Get two-way protection of crop and profits by selecting the John Bean equipment that's perfectly matched to your methods in your orchard.

Easier, Lower Cost Concentrate Application with NEW *Auto-Mist!*

The new John Bean Auto-Mist gives you the drive and capacity necessary for successful application of concentrates. The oscillating fish-tail discharge puts out a volume of high-velocity air to get through the trees and give saturating coverage. Low branches and undersides of leaf get protection because of Auto-Mist's low profile that drives material up into the tree. You can quickly adjust the oscillating stroke to get the correct coverage in trees of different size, and the Auto-Mist will spray to either the left or right. These are just a few of the outstanding features of this new sprayer in the John Bean line that will give you better-than-ever crop protection. Write for free Auto-Mist catalog and see the many advantages Auto-Mist holds for you.



Speed Sprayer's 4-way control gives you complete flexibility of operation. Spray right, spray left, spray both ways, spray extra high for the biggest trees. Controls are mounted so the tractor driver can operate them and "keep his eyes on the road."

John Bean Low-Boy makes it possible for you to have all the benefits of automatic spraying at lowest possible cost. Complete coverage, including undersides of leaves . . . fast, thorough, one-man operation.

John BEAN fmc **Lansing 4, Michigan**
San Jose, California

DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

LETTERS TO THE EDITOR

Winter Injury

Gentlemen:

We have a four-year-old peach orchard. This year, due to —26° weather, they seem to be hard hit. Will these trees come back? Can anything be done to save them?
Grand Rapids, Mich. Mrs. Andrew Visser

Injury from spring frost is usually overestimated, but injury from winter cold is usually underestimated. Damage may be done which does not show up for several years and which insidiously works to weaken the tree, increase breakage, increase inroads of diseases and insects, and altogether make for unprofitable fruit production. And so the general rule is to err on the side of removing injured trees and replanting.

On the other hand, the peach has marvelous powers of recovery. Sometimes, winter-injured trees may be kept going for two or three seasons and may produce crops when the market is short, which will pay for the gamble. However, —26° F. means no live fruit buds in 1950 and considerable tree damage. Most growers would decide to replant under such conditions.—Ed.

Another Rabbit Repellent

Dear Sir:

Dr. William F. Pickett, Kansas State College, says that a very effective repellent can be made by dissolving resin in methynol or methyl alcohol at the rate of one pound of resin per pint of liquid and painting it on tree trunks.
Farmington, Mo. G. David Bauch
Farm Forester

Government Controls

Dear Editor:

I was much interested in W. D. Plough's letter from Wenatchee, Wash. (January, 1950 issue). He spoke what I have had in mind for a long time. We see support prices for pork and eggs; then in my State comes one of the most disgusting things I ever heard of—the Spud deal.

We fruit growers take our rap on the chin and don't get any help from the government. I think it is high time to stop taking the taxpayers' money to pay off this foolishness over the country and let things level off to where we can live and let live.
Emmett, Idaho J. W. Hunter

Oldest Apple Tree

Gentlemen:

The severe ice storm that broke in the Vancouver, Wash., and Portland, Ore., area on January 17, 1950, covered all trees and shrubs with from one to three inches of ice, causing losses up to 90 per cent in orchards and nurseries throughout the district.

To older settlers, horticultural societies, and those interested in Northwest history, there was no worse casualty of the storm than the loss, by breaking under the weight of ice, of one of the two remaining large laterals of the "Old Apple Tree" at Fort Vancouver.

Historians have put forth an interesting and romantic story of this, the Northwest's oldest living and bearing apple tree. In 1826 at a dinner party given in London in honor of a group of men departing for the Northwest Pacific Coast for the Hudson Bay Company, a young lady carefully saved the seeds from the apple she was eating and placed them in the suit pocket of one of the young men, asking him to plant them on his arrival in the New World.

The seeds were planted at Fort Vancouver, under the eyes of Dr. John McLoughlin, chief factor. The seeds germinated and one tree lived. A few years later the first crop consisted of one apple which was carefully picked by Dr. McLoughlin and divided into 17 pieces, one for each guest at the dining hall that evening. The following season the tree bore 20 fruits and has continued to bear almost every year to the present.

Whether the legend of the Old Apple Tree is authentic or not is of little consequence, but those who have studied the Hudson Bay Company's exceptional devel-

opment under Dr. McLoughlin and the final establishment of Fort Vancouver, know that by 1836 some 10 acres of good bearing orchard were growing at the fort farms. Even if the tree were from this orchard, it is not less than 120 to 125 years old, making it still the oldest apple tree in the Pacific Northwest.

It is sincerely hoped by historians, old-timers, and horticulturally interested persons in Washington and Oregon that steps will be taken at once to try to preserve the remaining part of the old tree.
Vancouver, Wash. Roy C. McCue

Pesticides Stop Grazing

Dear Editor:

In the August, 1949, issue of AMERICAN FRUIT GROWER, in Letters to the Editor, there were comments regarding grazing of sheep in an orchard.

Considering that much of the poisonous spray materials falls to the ground and collects on the grasses beneath and around the trees, wouldn't it be dangerous to graze sheep or any other domestic animal in the orchard through the summer? I have heard that rabbits are immune, partially or wholly, to arsenic poison; but I have never heard of sheep or other animals being immune.

I wonder if there is any domestic animal which could be safely grazed in an apple orchard, and, if so, what spray materials could be, or should not be, used to effectively spray the trees.
Scottsville, N. Y. C. K. Potter

Animals are not immune to arsenic, but they can build up a tolerance for it much the same way as did the codling moth. Reader Potter is right in saying that it would be dangerous to graze sheep or other domestic animals in the orchard during the spraying season without regard to the material used. Some materials such as sulfur, may do no harm, but others are more potent.—Ed.

MANUFACTURERS REPORT ORCHARDISTS HIGHLY PLEASED WITH PARATHION INSECTICIDES

Operators of insecticide-mixing plants in fruit-growing areas can be expected to be in close touch with the users of their products and to have first-hand knowledge of their reactions. A Washington State manufacturer recently gave a highly enthusiastic report to a Cyanamid field representative about acceptance of his insecticides containing THIOPHOS® Parathion. "Not one complaint from growers" regarding results was his report after over 150 tons had been applied in the area.

APPLES ARE JUST ONE of the many fruit crops that are protected and improved in quality by wettable powders and dusts containing THIOPHOS Parathion.

In California, where dusts and sprays containing THIOPHOS have been used on a wide variety of fruit pests, a local manufacturer reports equal enthusiasm among his customers for this new pest-killer.

Remarkable for the degree of protection they afford such fruits as apples, grapes, peaches, pears, prunes, plums, strawberries and walnuts, parathion insecticides kill most pests found on these crops – even the aphids, mites and bud moth usually unaffected by most modern insecticides.

Thiophos Parathion Insecticides made by National Manufacturers

Dust and wettable-powder formulations made from THIOPHOS Parathion are available from reputable manufacturers.

Weather, Timing, Method of Application Important Factors In Successful Use of Parathion

To profit fully from the efficiency of parathion as a pest-killer, farmers and fruit growers are being urged by Federal and State agricultural experts to observe carefully the manufacturers' instructions for applying parathion to specific crops. Such factors as weather, timing in relation to the development of the crop and insects, and method of application are known to be just as important as the correct dosage in achieving best results. For this reason, users are advised to consult with local agricultural experts or manufacturers' representatives to be sure of getting the most complete pest control and crop protection with this remarkable insecticide.

Use Parathion Safely

Any insecticide toxic to insects is also hazardous to humans if used carelessly and in defiance of certain common-sense precautions.

These precautions are stated explicitly on every container of parathion insecticides. They must be read carefully and observed strictly to avoid accidents.

It is urged that work crews who are given parathion to apply be fully advised also of the necessity of observing these precautions.

Be sure to write for Growers' Manual on Parathion

AMERICAN Cyanamid COMPANY

Agricultural Chemicals Division

30-X ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Please send me Growers' Manual giving latest recommendations for using Parathion.

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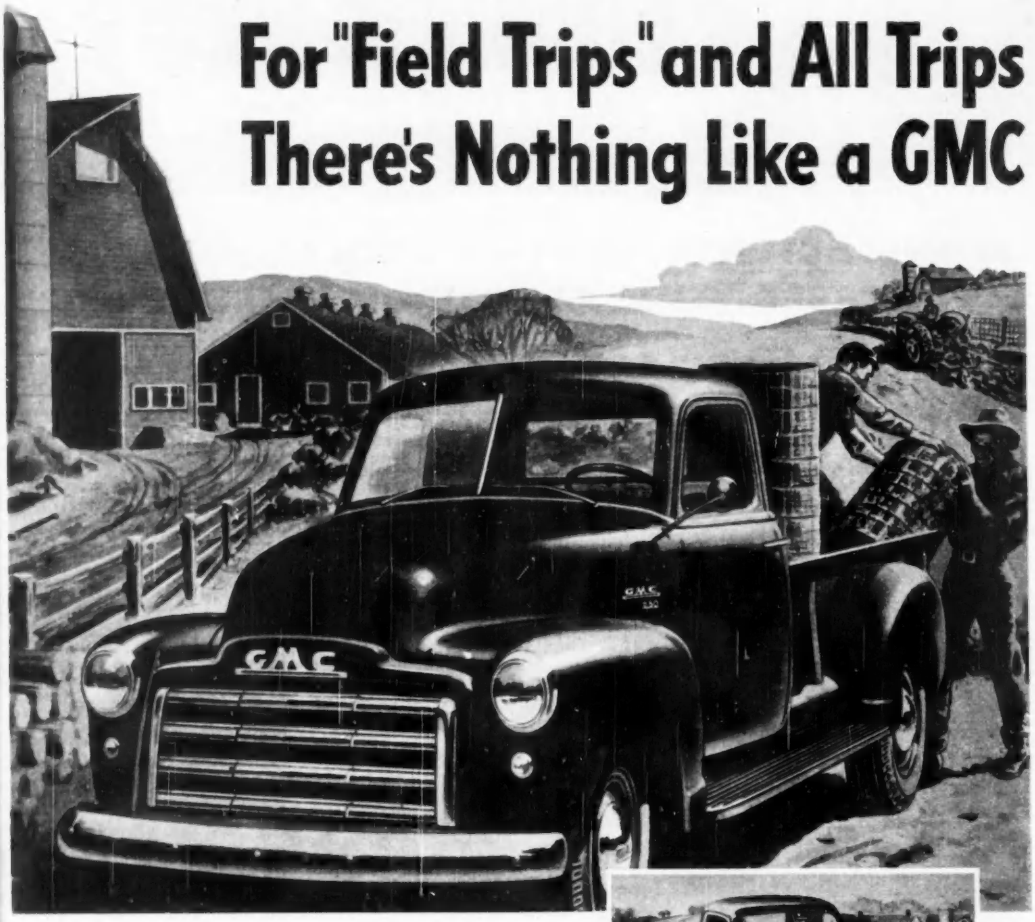
For "Field Trips" and All Trips There's Nothing Like a GMC



Rugged and powerful, GMC trucks have plenty of "what it takes" to handle all of the thousand-and-one hauling jobs encountered in farm work. Their famed valve-in-head engines are truck-built for dependable, thrifty performance . . . their strong chassis are truck-built, too, for extra stamina and long life.

Out in the pasture or out on the pavement GMCs work equally well . . . and when the hauling chores are done they're ready to "go to town" with big, broad cabs that seat three comfortably, and sleek, streamlined good looks that are at home in any company.

GMCs have long been favorites in the farm field . . . solid favorites because they are solidly built by the world's largest exclusive manufacturer of commercial vehicles . . . favorites because their performance and economy, on all jobs, prove *there's nothing like a GMC.*

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

GMC
GASOLINE • DIESEL
TRUCKS

Trig and trim, with passenger car-like comfort and handling ease, hard working GMCs also provide fine family transportation.

Supplies are moved from town to farm, produce from farm to market, quickly, dependably and economically with a GMC.

Baldwin on Malling IX—two years old; a garden plant.

Cortland on the Malling XIII rootstock, a semi-dwarf.

THE SMALL, CONTROLLED FRUIT TREE

By H. B. TUKEY, *Michigan State College*

THE QUEST continues for the small, controlled apple tree adapted to efficient pruning, spraying and harvesting of uniform, quality fruit and suited to the rotation orchard.

While present standard-size fruit trees have given a good account of themselves, there is still much to be desired. Pruning and harvesting operations are expensive. Large trees require powerful equipment to secure coverage clear to the tops. The new semi-concentrates and the one-man outfit call for small trees. Competition says that it is the young tree that is the most profitable.

And so the apple grower still dreams of a tree in full production at five to seven years of age, continuing perhaps 20 years, and then to be replaced with a rotation block of new, young trees.

It is true that considerable progress already has been made in keeping present standard apple trees small and in getting them into production early. Reliance on well-grown nursery stock, careful selection of soil and site, low-heading, little pruning, careful attention to keeping the tree free from devitalizing insect and disease troubles, proper use of fertilizers, water, and mulch—all of these have helped. But there is still more that is wanted, and so there is continued interest in the so-called "dwarf" and "semi-dwarf" fruit trees.

Experimentation has reached the point where growers and nurserymen must accept some of the testing of dwarf stocks to determine their worth in commercial fruit growing.

Thus far, reliance for such trees has been on the "Malling rootstocks," 16 in number, which derive their name from the East Malling Research Station in England where they were standardized and from which they were disseminated. These rootstocks are propagated not by seed but by such vegetative means as layers, stem cuttings, nurse-root grafts, root cuttings, and the like. Onto these rootstocks the desired varieties are budded and grafted. The resulting trees range in size from one no taller than a man to one not dwarfing at all.

McIntosh apple on the Malling I rootstock, a precocious semi-dwarf. Trees attain the size of a small sour cherry tree.

Although they have been called "English rootstocks" and have been considered new and perhaps tender to winter cold, this is not entirely the case. To be sure, they were standardized and introduced relatively recently to America from England, yet only four of the 16 are of English origin. The others have come from Europe, and some are probably several centuries old.

They have been widely used in Europe, and they have proved sufficiently hardy over a 20-year period in the more favored commercial apple-producing sections of America. From 210 combinations with American apple varieties, no incompatibilities have yet been found.

Trials have gradually narrowed the field and have cataloged the value of these rootstocks for American conditions to considerable degree. For example, the Malling III, IV, VI and VIII have been temporarily, at least, eliminated. The roots of Malling III and VI sucker, Malling IV is poorly anchored and tends to blow over, and Malling VIII is weak and unpromising. Malling X, XI, XIV, and XV have not been sufficiently tested to give a proper evalu-

(*Continued on page* 34)

Gifford

While only five beehives are shown in the above photo, a grouping of as many as eight to 10 hives will prove advantageous.

FRUIT POLLINATION FROM A TO Z

By JOHN C. SNYDER, *State College of Washington*

MANY VARIETIES of fruits and nuts are self-unfruitful. To pollinate them you must use pollen from another variety and practice what is commonly referred to as cross-pollination. Others are partially self-fruitful and produce at least partial crops when pollinated with their own pollen. To be sure of full crops, you must also cross-pollinate some self-fruitful varieties.

Pollen-producing trees are known as pollinizers. Some pollinizers are popular commercial varieties but others are of value mainly because of their pollen. Some pollinizers are good for one variety and some are good for another, so pollinizers must be selected that will satisfy the needs of the self-unfruitful varieties (those requiring cross-pollination). Naturally, the more self-unfruitful varieties you have, the more attention you must give to pollination. That's why it is an important problem in the Northwest where Delicious and Winesap are the main apple varieties.

The arrangement of varieties when starting an orchard, as far as pollination is concerned, is a problem only when you grow self-unfruitful or partially self-unfruitful varieties. When your planting is to include both self-fruitful and self-unfruitful varieties, you simply plant alternate strips of each. The self-unfruitful strip should never be more than four rows wide. In locations where pollination weather frequently is poor, two or at most three rows may be as far as you should go.

Occasionally you must use pollinizers that are valuable only for their pollen; that is, they are not varieties whose fruit the market demands. You then want to devote the minimum of space to pollinizers. In such cases, it is a fairly common practice to place a pollinizer in every third space of every third row. Then every ninth tree is a pollinizer and every self-unfruitful tree borders a pollinizer.

Some mature orchards do not contain enough pollinizers. The quickest way to correct the trouble is to graft pollinizer branches into some of the trees. One pollinizer branch per tree is usually adequate, but you may need two. Using yellow varieties offers some advantage in keeping the fruit separate during harvest. It is good insurance to graft a relatively early-blooming variety in one tree and a later one in the next; otherwise your pollinizer may be a little too early or a little too late during some seasons.

To be most effective, pollinizer branches must be placed where insects are most likely to visit them. Place them on the warm side of the tree and out of the wind. Don't place them on the north side or on the side hit by a prevailing wind. In general, rather high on the south or southeast side is preferable.

These branches are valuable primarily as pollen producers. They must not be dwarfed out by other branches nor dare they dominate other major fruit-producing branches. As a rule, laterals or secondary branches arising rather high on leaders are satisfactory. Leaders or scaffolds represent too much bearing area on the tree.

Mark the pollinizer branches with paint to protect them from pruners. To ensure regular blossoming, thin early or remove all the fruit.

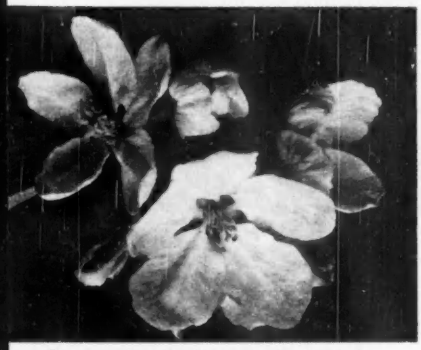
Whole trees as pollinizers offer some advantage in keeping the fruit separate during harvest. With branches, a continual effort must be made to keep them growing enough, but not too much. On the other hand, as whole trees become mature, the set of fruit in some cases becomes too heavy during favorable seasons. This trouble, which is particularly true of sweet cherries, need not be serious, inasmuch as the size of the pollinizer can be reduced by pruning.

Role of insects. Fruit pollen is carried by insects, but that of filberts and walnuts is carried primarily by wind.

There are many insects that carry fruit pollen, but the honeybee is by far

the most important. Others, such as the leaf-cutting bee and syrphus fly, work more freely during cool weather and probably do more good than is generally believed. The bumblebee is a good pollinator, too. She works when it is too cold for most other insects.

The management of pollinating bees is a specialized job that requires an understanding of bee nature. First of all, bees do not travel far. They have been known to travel freely over a radius of two miles, but shortening this distance increases their efficiency. Because a bee can make three or four short trips in an hour, but can hardly make more than one long trip, placing the hives within the orchard is desirable.



Closeup of apple blossoms showing balloon stage when pollen is ripe for collecting for hand pollination purposes; stage suitable for applying pollen; blossom too advanced for pollen application.

R. M. Bullock, Tree Fruit Experiment Station, Wenatchee, Wash., collecting pollen.

Applying pollen with a pig-hair brush. Bristles have been cut square and rubber band used to keep them from spreading.

The distance from the orchard is not necessarily the determining factor when trying to get bees to work on your trees. Once they start feeding on a certain kind of blossom they continue to feed on it until it is past, even though in the meantime another kind may come into bloom nearer the hive. They also prefer certain kinds of blossoms and, unfortunately, some of our fruits are not their favorites. The fact that the sugar content of some nectar is greater than that of others accounts at least in part for this preference.

The activity of a healthy, normal colony is determined largely by the temperature within the hive. The location of the hives in the orchard, therefore, is important, from the standpoint of keeping them warm, protected from the wind. The best place is in a sunny spot out of the wind.

It is not necessary to distribute the hives singly throughout the orchard. Placing them in groups of eight to 10 in warm and protected places not only promotes optimum activity, but facilitates bringing them into and taking them out of the orchard. Once they are located, they should not be disturbed until pollination is complete. The time of bringing them into the orchard in relation to blossom development determines whether they start working in the immediate orchard or in a neighboring orchard. The best time is just as the very first blossoms start opening. Earlier encourages them to go elsewhere and later may miss needed pollinating weather.

In general, one colony with four frames of bees per acre at cherry blossom time is adequate. These will build up to five frames by apple blossom time. On one frame, there are approximately 15,000 bees, which means 60,000 and 75,000 bees at cherry and apple blossom time, respectively.

Scientists have tried to force bees to distribute artificially-collected pollen. Traps designed to force the bees to pass through pollen upon leaving the hive have been attempted. Obviously, when leaving the hive for a load, the bee tries to free herself of any clinging material, but if she can be made to pass through pollen, she has no choice other than to carry a certain amount of it.

Experimental work shows that pollen placed in traps at the entrance of the hive soon disappears. Part of it is carried into the hive, some is fanned out, and some clings to the body of the bee. In any event, it is necessary to renew the pollen frequently; how frequently can be determined by inspection. Obstructions of any kind—traps, brush, or boards—at the entrance of the hive, may hinder the much-desired free activity of the bees. It behooves orchardists when attempting to use traps to make sure that they function properly lest they not only fail to aid but actually hinder pollination.

Commercial hand pollination. There are many hindrances to insect pollinators, including cool, rainy, or windy weather. During some seasons and in some areas, disturbing factors may threaten the chances of getting satisfactory pollination by natural means and human aids of various kinds have been found to be profitable. These vary from doing the complete job by hand to placing bouquets in the orchard.

Commercial hand pollination of apples is now past the experimental stage. Growers with orchards in locations where pollination by natural means is uncertain consider it good insurance but generally prefer to establish enough pollinizers to take care of the uncertainty. Those who are short of pollinizers also find it profitable until they can establish natural pollinizers. There are few, if any, growers, however, who wish to substitute it for natural means.

Pollen obviously must be collected from the right variety. Self-fruitful varieties generally are satisfactory, and partially self-fruitful varieties are satisfactory for certain varieties.

Pollen grains are alive. They may be thought of as seed. Like seeds, they must be allowed to ripen if normal germination is to be expected. In nature, pollen remains in the blossoms until the pollen sacks or anthers open, but you must collect it just before they open; otherwise you lose part of it. The "balloon" stage is considered ideal. The pollen is then ripe and inside the anthers. Only during hot weather are any pollen sacks open at this time.

There are several methods of removing blossoms from the tree. A common one is to provide collecting receptacles such as wide-mouthed fruit jars that can be carried from branch to branch. The receptacle is usually attached to the waist, leaving both hands free. This method not only ensures fresh blossoms but also makes it unnecessary to prune off branches during the blossoming period. Of some significance, also, is the fact that removing blossoms aids in the thinning operation.

Another method is to delay pruning the pollinizers and to collect the pollen from the prunings. The pruned

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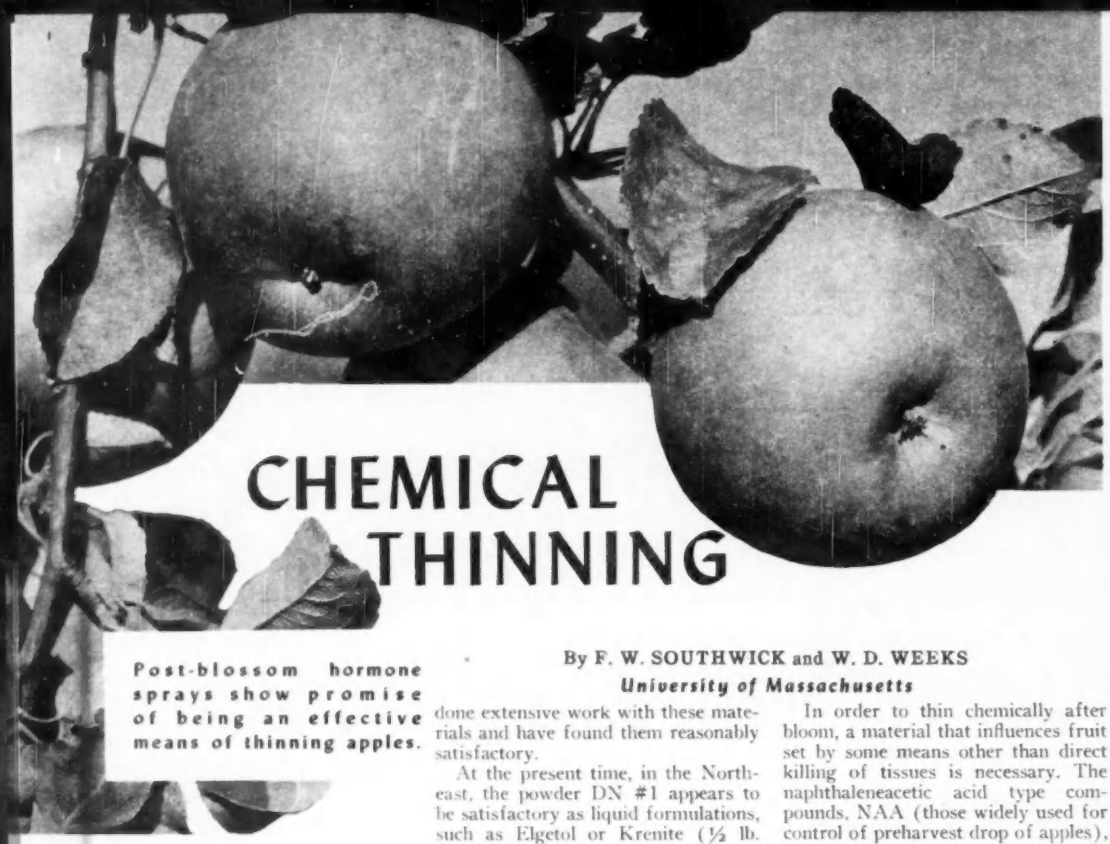


CHEMICAL THINNING

Post-blossom hormone sprays show promise of being an effective means of thinning apples.

By F. W. SOUTHWICK and W. D. WEEKS
University of Massachusetts

WE ALL KNOW that in order to obtain suitable fruit size many varieties of apples which set heavily require thinning. To do this job by hand, however, is extremely laborious and costly. Also, although hand thinning will aid in improving the size of the remaining fruit, it is done so late (after the June drop) that flower bud formation for the following year is not appreciably influenced. Heavy cropping in one year leads to irregularity of production in following years.

This tendency toward smaller fruit size and alternation becomes more pronounced as trees get older and can be a problem with virtually any variety, although some are inherently much more biennial in bearing habit than others.

Chemical thinning, which can be done earlier and much cheaper than hand thinning, offers the possibility of obtaining maximum benefits in fruit size for a given degree of thinning and by reducing the set early may tend to make some alternating varieties bloom annually.

With these objectives in mind, many experimental and commercial trials of dinitro materials for thinning apples at blossom time have been made in the Northeast over the past 10 years. Dr. M. B. Hoffman and his associates in New York State have done extensive work with these materials and have found them reasonably satisfactory.

At the present time, in the Northeast, the powder DN #1 appears to be satisfactory as liquid formulations, such as Elgetol or Krenite (½ lb. DN #1 is equivalent to 1 pint of liquid), in reducing fruit set, and generally it has been less injurious to foliage. The concentration used and timing suggested differs among varieties and for a given variety, depending upon such factors as the amount of bloom, type of blossoming weather, vigor of trees, number and position of cross-pollinizing varieties, and the past tendency of the trees to overset.

In brief, since space does not permit a detailed discussion, the dinitros should be applied at full bloom or approximately a day thereafter, depending upon the variety. In general, the concentration range is from ½ pound (or 1 pint) to 1 pound (or 1 quart) per 100 gallons of water.

The material apparently thins through its toxic action on pollen, preventing its germination, and on the pistil. Presumably flowers which have not been fertilized prior to the treatment are those which fail to set and drop off.

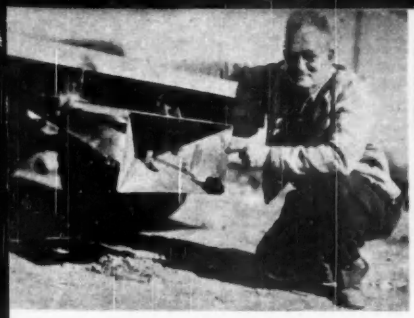
The chief disadvantages of the dinitros are: 1) They must be very accurately timed. 2) The extent of fruit set and the necessity for thinning cannot be determined at this time. This is particularly true when conditions for pollination and fertilization are not ideal. 3) In many seasons killing frosts are still a possibility following bloom.

In order to thin chemically after bloom, a material that influences fruit set by some means other than direct killing of tissues is necessary. The naphthaleneacetic acid type compounds, NAA (those widely used for control of preharvest drop of apples), appear to be such materials. Work by experimenters in Indiana and New Mexico in the early 1940's indicated that this hormone would reduce the set of some apple varieties when applied at or near full bloom. Later work in Michigan by J. A. Davidson and associates and eventually by others throughout the country shows that it may be of practical value to commercial orchardists in this regard when applied at calyx time or up to four weeks after calyx.

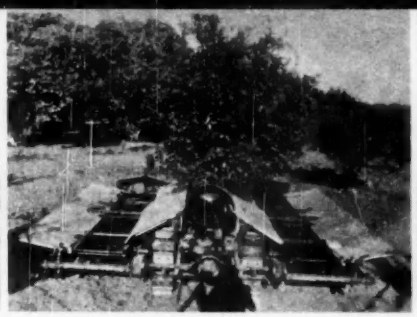
Recent attempts have been made to determine when thinning occurs following the use of this hormone and why the material causes certain flowers and young fruits to abscis but not others. On Golden Delicious in Amherst, applications at calyx and two and four weeks after calyx resulted in an increase in flower and fruit drop from 9 to 12 days following treatment. In other words, the effect on drop is not immediate. In fact, our data and some from Professors B. E. Struckmeyer and R. H. Roberts at Wisconsin indicate that prior to the period of increased drop the natural abscission process may be delayed for several days so that treated trees may have a heavier set temporarily than unsprayed trees.

An attempt was made to determine whether the selectivity of the material

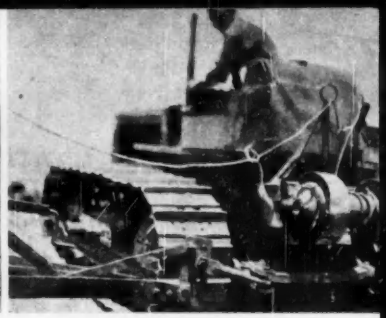
(*Continued on page 36*)



This safety hitch developed by J. R. Gosser, Holt, Calif., permits driver from seat on truck and by means of a rope to unhitch trailer or hitch truck to trailer.



Vibration of tractor against tree showers prunes onto sheet-metal wings; fruit rolls into conveyor, then to box at rear, in this A. Boeger development, Gridley, Calif.



Leo Kelly lengthened the hitch between tractor and implement, using his home welding outfit. Now he can make square turns in the hilly area near San Diego.

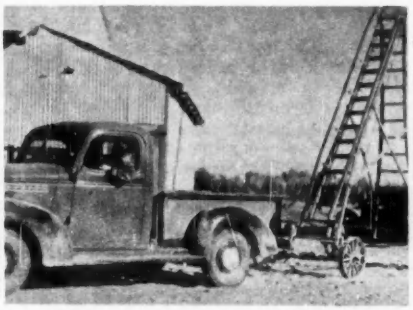
COST CUTTERS
on the Pacific Coast

INGENUITY and inventiveness are being put to the test on the Pacific Coast in developing ideas and mechanical contrivances for cutting costs in orchard and grove. While fruit farms already are highly mechanized, the large expenditures for labor continue to influence the thinking of the grower along mechanical lines.

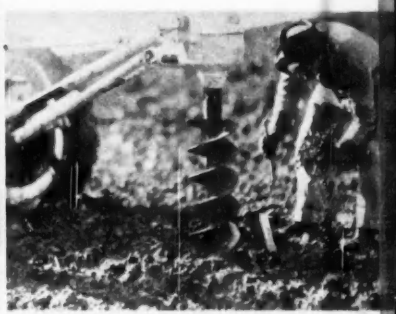
The results of this thinking and careful planning are culminating in many unusual short-cuts and laborsaving devices, some of which are illustrated on this page. The savings effected in using a post-hole auger, for example, during the planting season, or a tractor-drawn sorting table in the orchard during harvesttime are tremendous.

The West Coast is not alone in its cost-consciousness. The most discussed subject during the winter meetings of horticultural societies in the East and Middle West was that of reducing production costs. Necessity being the mother of invention, we shall look to these sections, too, for orchard cost cutters.

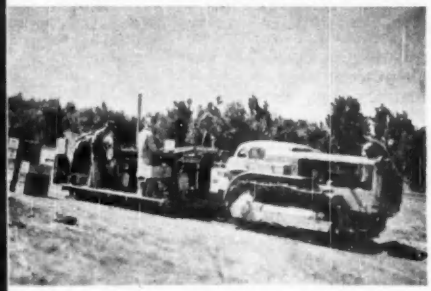
Spring guard prevents plow from hitting posts and vines in this late version of the old French vineyard plow, designed by Mitchell Brothers of Arvin, Calif.



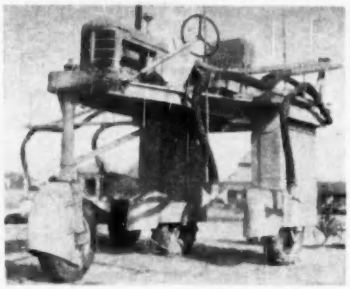
The Arizona Experimental Farm superintendent near Yuma devised this mobile, adjustable ladder. Double section for lengthening has crescent-shaped fasteners.



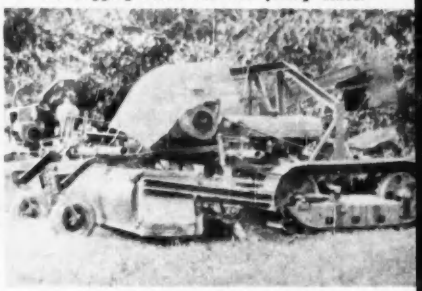
At the Weibel Vineyard in the Santa Clara Valley much time and labor are saved by using a post-hole auger on rear of tractor for digging holes for the young vines.



Portable tractor-drawn sorting table in the Bingham Orchards at Patterson, Calif., drastically cut labor costs, thus increasing profits the past three seasons.



Dusters are going up! This high-clearance vineyard duster was built by Mitchell Brothers to more effectively control the pests on their grapes in Arvin, Calif.



This tung-nut harvester is an adaptation of the almond harvester developed by A. D. Goodwin and son on their prune and almond grove near Manteca, Calif.

Photographs by Hal Higgins

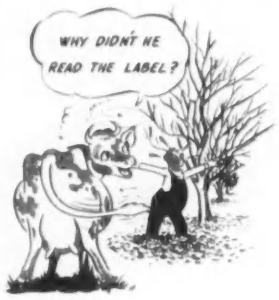
WHY READ A SPRAY DOPE LABEL?

By DON W. SANFORD, *The Dow Chemical Company*

YOU DON'T have to be a chemist to use agricultural chemicals. But you should take a good look at the label on any chemical you do use. Chemists and technicians who develop insecticides, fungicides, weed killers, etc., tell you how to use their products and they tell you how *on the label*.

By law, labels accompany the products you buy. Behind each new product that is marketed stands the label. Into it goes the knowledge of the entire chemical industry and the government agencies set up for the protection and guidance of the public. You can get ample directions from leaflets published by many manufacturers but adequate use directions are always on the label. The first important step in using any agricultural product should be—read the label.

A dealer friend of mine serves the dairy and fruit industries. He carried a product we'll call "Fly-Go," which was a splendid spray for flies



on cattle. He also carried a product we will call "High-Grow," which was a very nice summer oil for use on fruit trees.

One day a grower phoned in an order for a drum of "High-Grow." Over the party line that wasn't very clear, the clerk may have misunderstood the grower, maybe the grower had his teeth out or had a cold; anyway, the clerk thought he said "Fly-Go" and he shipped him a drum.

The grower or his help didn't read the label; they just dumped it in the spray rig and gave the trees the accustomed coverage. A few days afterwards he thought his trees looked a little poorly. He didn't eat much supper that night and he couldn't sleep. Finally, he got up and took his flashlight and went out to the barn. He then read the label! He got in his pickup and drove out to the orchard—the trees were completely defoliated.

To most fruit growers, Don Sanford needs no introduction. Mr. Sanford is one of the best informed bug and beetle men in the country and as assistant manager of agricultural chemical sales of one of the leading chemical producers, he is an old hand at the business of supplying orchardists with insecticides and fungicides. In this article, he writes of the importance of using spray chemicals correctly and how careful reading of the spray dope label can save many unfortunate losses. The cases cited are authentic but for obvious reasons the exact details and names have been omitted. We urge all growers to pay heed to Mr. Sanford's warning.—Ed.

It's good business from a money standpoint to look at the label. Manufacturers aren't bashful about telling you what's in their product. The government closely regulates the statements that are required on package labels; many manufacturers exceed the minimum requirements.

In another instance, a customer came into a store and said, "I want something to kill *crab* grass." The clerk thought he said *quack* grass. Or else he didn't read the label. Anyway, the clerk sold him TCA. The fellow took it home and used it on his very nice lawn. Of course it killed every spear of grass. If he had read the label, he would not have killed his grass. The label says very specifically that the product will kill *all* grass.

Jobbers and retailers of agricultural chemicals are under a responsibility to their customers to read the label. A word of caution, a recommendation to the grower concerning the use of material he is buying may save the retailer and the grower many headaches.

Look at the label on any agricultural chemical product; it tells you: 1) what the product is; 2) what it's for; 3) what's in it; 4) how to use it; 5) where to use it; 6) important precautions; and 7) who makes it.

Any one of these is important to the user—all of these on one label makes it an important piece of paper for you to read.

One of our fruit growers had used dry lime sulfur for years. In all the old directions we referred to dosages

to be mixed with 50 gallons of water. This grower had used four pounds in 50 gallons of water for years. Then one day, to make the arithmetic easier in measuring dosages per gallon of water, we changed our instructions to dosages required to make up 100 gallons of spray. When we did that, we said to use eight pounds of dry lime sulfur in 100 gallons of water.

The grower just noticed the 100 gallons of water and went right on using his little four-pound measure. Of course, he used just one-half the dosage.

Fortunately, he got splendid results. From that experience of his, we found out that we could use considerably less chemical and still get good results. That mistake worked in reverse—he didn't do any damage but he could have missed control!

Parathion, one of the newer, more potent insecticides is highly toxic to human beings under certain conditions. Disregarding label directions in this case can be highly dangerous to you and your employees. Using parathion according to label directions provides you with a highly effective insecticide for many uses.

We had a customer who used Dowspray Dormant for years. The recommendation was two gallons per 100 gallons of water. We came out with a new DN-289, which was a more concentrated product than our

(*Continued on page 33*)

State NEWS

• Northwest Reports on Freeze Damage
• New Varieties in South Are More Cold-Resistant

WASHINGTON—The extent of damage to fruit buds and trees as a result of the severe freezes during January and February will not be definitely known for some time; however, a mid-March appraisal of possible damage, according to area, follows:

CENTRAL WASHINGTON, *Mar. 16*—The low temperatures killed fruit buds on peach, apricot, Santa Rosa plum, cherry trees, and Concord grape vines. They also discolored pith, bark, and woody tissues on nearly all varieties of fruit. In some areas, the bark and cambium tissues of peach, apricot, cherry, prune, and Santa Rosa plum trees were killed immediately above the "snow line."

Fortunately, the trees went into the winter when they were fully dormant, and the general pattern of injury is based on the resistance of the variety or species of fruit rather than on the immature condition of the trees.

Apple trees in general show but slight injury and should produce a normal crop of fruit. Most of the injury occurs on the Rome and Jonathan varieties. In pears, the Bartlett variety is the most severely injured. Trunk injury in pears is rare and there should be little or no loss of trees.

Injury to sweet cherry trees varies from orchard to orchard. In the lower Yakima Valley trunk injury is severe and some tree loss is expected. A fair crop of cherries is expected but size may be a problem due to the spur and twig damage.

Nearly all peach fruit buds were killed. No 1950 commercial crop is expected. J. H. Hale shows the most severe damage. Loss of peach trees will be considerable. Bud injury is less severe on apricots than on peaches but only a shadow of a crop is expected.

There is severe bud killing on Santa Rosa plums but as in the case of apricots, there still remain a few live buds in the extreme tree tops. Trunk injury is severe and will take some toll of trees. The winter damage to Italian prune trees is restricted largely to old spurs and devitalized fruiting limbs. Some trees four to six years old in the lower Yakima Valley show severe trunk damage. A good crop of fruit should be produced generally and loss of older bearing trees should be negligible.—*W. A. Luce, Assoc. Ext. Agent, Yakima.*

WENATCHEE, *Mar. 17*—The low temperatures of 1949-50 in the Wenatchee area were not of as long duration as the previous year but were lower and caused more injury to fruit buds and wood growth of stone fruit trees than occurred in 1948-49.

At the Tree Fruit Experiment Station, Wenatchee, the December, 1949, minimum temperature was 7°; for January, 1950, —22°; and for February, —24°. January and February temperatures were severe with a total of 13 days of —10° to —24° and 21 days of 0° or below.

The tree and fruit condition as of March 1, 1950, show very severe injury to fruit buds of peach, apricot, and cherry, and some injury to buds of plums and prunes. In some protected areas, the bud injury is less severe, especially on cherries. Pear buds and spurs show some injury but it is impossible to determine the extent at this time. Apple buds and wood growth on normal growing trees show little or no injury but some injury is noted on apple trees weakened from previous injury.

The wood of peaches and apricots and in some areas of cherries is severely injured and may result in complete killing of the trees.—*F. L. Overley, Tree Fruit Experiment Station.*

WESTERN WASHINGTON, *Mar. 15*—Strawberries show possible overall reduction of 10 to 20 per cent in crop prospects for 1950. In Whatcom County, where strawberries are a very important crop, portions of strawberry fields that were swept bare of snow during blizzard conditions show extensive plant killing; otherwise, little damage.

Red raspberries—about 600 acres are grown in Whatcom County—probably will be reduced one-fourth to one-third below normal crop prospects. Blackberries were seriously damaged, probably 80 per cent crop loss. Boysenberries and other trailing varieties probably are heavily damaged.

Sour cherries show some damage to flower buds but the crop prospects are believed to be good. Peaches show severe damage to fruit buds.—*C. D. Schwartze, Assoc. Hort., Puyallup.*

United Air Lines

FROM THE RIO GRANDE TO LaGUARDIA FIELD. This first shipment of Texas strawberries ever flown to New York was picked this winter in the Rio Grande Valley.

OREGON, *Mar. 17*—It is still too early to measure accurately the extent of winter damage to various tree fruits in the Hood River area. Minimum temperatures ranged from —21° to —27° in the district. Subzero conditions prevailed for approximately a week. Fortunately, a very deep blanket of snow prevailed at the time, which protected trunks and crotches of trees. The thawing out period was favorable in that little sunshine occurred that would have resulted in extensive sunscalding and bark-lifting.

It can be stated definitely that the peach crop has been destroyed. Young trees appear to be severely injured. This crop, however, is of minor importance in the district. Based upon cuttings brought into the laboratory in order to force bloom, it is evident that greatest bud injury has occurred with cherry and Bartlett pear. Anjou pear shows less damage at this time. Apple buds show little or no damage.

Evaluation of the 1950 crop cannot be made with any degree of accuracy until the bloom period is past.—*Leroy Childs, Supt., Hood River Exp. Sta.*

There has been no winter injury to any of our fruit crops in the Rogue River Valley. We had temperatures down close to zero but apparently conditions were favorable because as yet we have been unable to find any bud or trunk injury.—*C. B. Cordy, County Ext. Agent, Medford.*

GEORGIA, *Mar. 16*—Barring any heavy freezes, Georgia should have a fair peach crop. In the Fort Valley section, Hiley are a day past full bloom and Elberta are showing pink with full bloom expected in a week or 10 days depending on the temperature. Growers have been advised not to blossom thin because of a possibility of a heavy drop. There are ample blooms left to set a good crop.

In the middle Georgia peach section, Elberta have been in bloom nearly three weeks. Continual low temperatures have greatly held back flower development. In spite of two low temperatures of 23° F. with a resultant killing of some blossoms, there are still enough left to set a crop even in the most advanced orchards.

The blossoms of the new Southland variety developed by Dr. John A. Weinberger at Fort Valley are apparently most resistant to cold even in full bloom. While varieties like Elberta are severely injured, the Southland comes through with minor injury.—*Earl F. Savage, Experiment.*

SOUTH CAROLINA, *Mar. 18*—Present prospects are for about an 80 per cent peach crop despite numerous periods of low temperature. Since mid-January every period of low temperature has reduced the number of fruit blossoms but a fair amount of most varieties remains. Particularly on heavily planted Elbertas we had one of the heaviest bud sets on record. Only Late Elberta and Jubilee suffered seriously. Average state of full bloom in Piedmont, S. C., March 17-19; in Central South Carolina, March 10-12. Full bloom in Piedmont expected March 20-22.—*Roy J. Ferree, Sec'y, Clemson.*

(*Continued on page* 43)

MARKETING

Why do housewives buy fruit? A partial answer to the question was revealed in a survey recently completed in Kentucky under the Research and Marketing Act. Households in urban and rural districts indicated that taste was the most important reason why they used oranges and grapefruit. It was found that practically every family of the thousand surveyed use some citrus fruit.

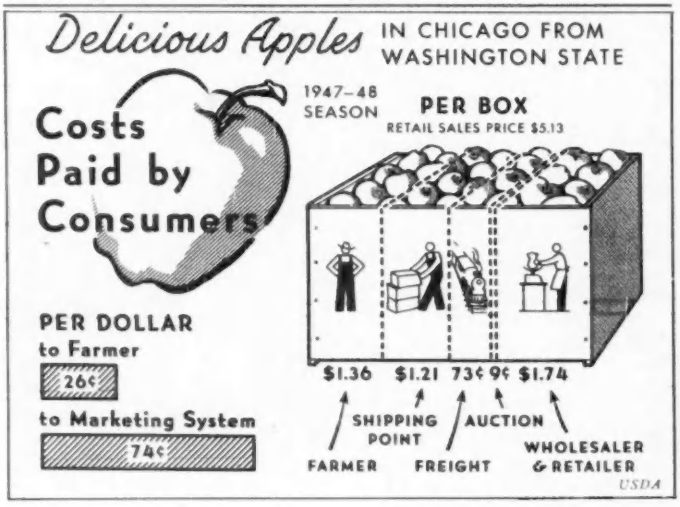
Housewives indicated that the health qualities of citrus were important, although many were unable to name the special food values contained in citrus.

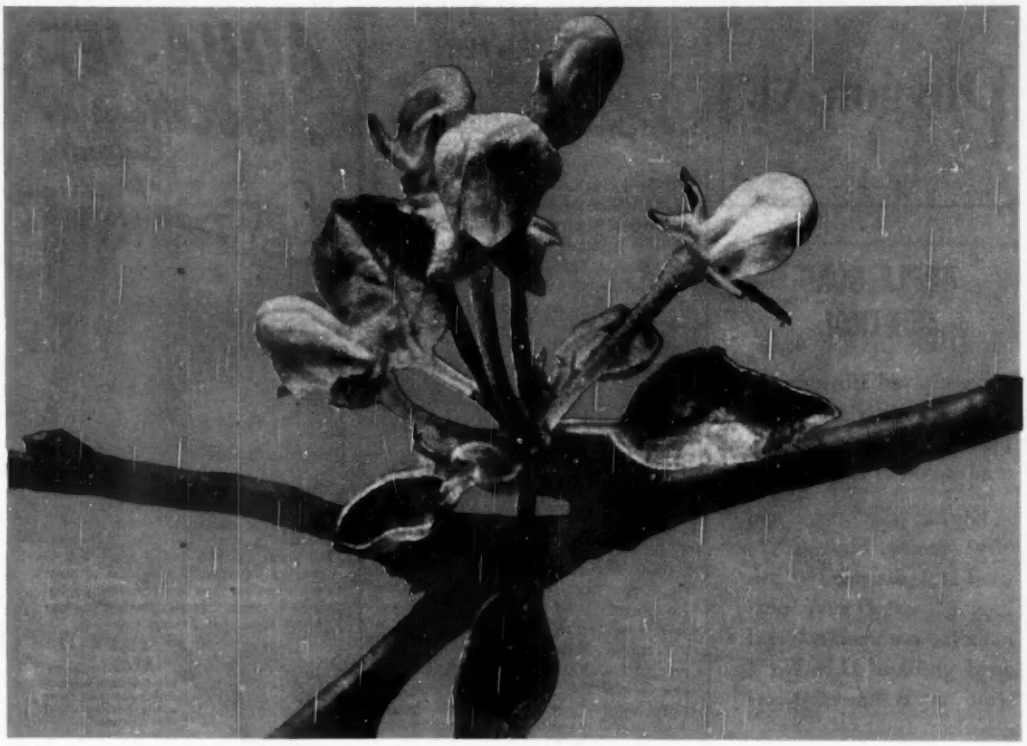
Marketing costs. A study recently completed by State of Washington and USDA economists showed Washington apple growers received about 26 cents out of each dollar spent by Chicago consumers during the 1947-48 season. The chart below shows where the marketing charges took place. From the $1.36 received by growers were paid costs of production and marketing as well as cost of handling apples to the packing plant. Shipping point charges totaled $1.21, which included 46 cents for packing, 38 cents for box and lid, 21 cents for warehousing and storage, 13 cents for handling and selling, and 3 cents miscellaneous.

What can growers do to reduce the high costs of marketing? Shipping only well-graded, high-quality fruit to market will reduce spoilage losses and help to decrease the cost of wholesaling and retailing.

What is a Bosc? The relative obscurity of pears in the minds of consumers was strikingly demonstrated by a man-on-the-street recognition quiz conducted in New York several years ago. Of the first 1,000 pedestrians quizzed as to the meaning of the word "Bosc," over 900 thought it was a German soldier, 75 or more had no answer, three or four thought it was a type of processed milk, and only one recognized it as a prominent western pear variety!

Fruit prices. The bumper deciduous fruit crops of 1949 brought growers a seasonal average price below that received for the short crops in 1948. Preliminary USDA figures indicate that 1949's commercial crop of apples brought an average per bushel price of $1.45 compared with $2.23 the preceding year. Peaches averaged $1.53 per bushel in 1949 as compared with $2.05 in 1948, while the average of $1.19 for pears compares with $2.53 in 1948. Cherries returned $147 per ton for the sweets in 1949 and $276 in 1948, but the smaller 1949 crop of reds brought $188 as compared with $184 per ton the previous year. Grapes averaged $35.10 per ton in 1949 and $39.50 in 1948. In citrus, oranges, including tangerines, averaged $1.56 per box in 1949 and $1.70 in 1948; lemons, $2.80 as compared with $4.18. The very short crop of grapefruit in 1949 returned an average per box price to growers of $1.64 as compared with 1948's price of 80 cents. Limes at $3.50 in 1949 compares with $3.14 per box in 1948.





Young Leaves Need Extra Protection

Tender, young leaves are "tea" for rosy aphids. Newly-hatched aphids congregate on young leaves and shoots and do serious damage, unless they are controlled. Watch carefully. At the first sign of aphids, spray with reliable, dependable Black Leaf 40.

It's a good idea to keep Black Leaf 40 on hand throughout the season, for fast, efficient protection against aphids, leafhoppers, apple redbug, most thrips, four-lined leaf bug, pear psylla, codling moth, bud-moth, pear midge, leaf-miners, mealy bugs, pecan phylloxera, pecan nut casebearer, and similar insects.

Black Leaf 40 kills these pests two ways—by contact and by fumes—quickly and economically, and insects controlled by this method do not develop resistant strains.

Black Leaf 40 does not destroy beneficial insects such as lady bird beetles and their larvae, aphid lion, syrphid fly, chalcid wasp, orius bug, epyris wasp, braconid wasp, various egg parasites, and numerous other friendly insects that attack your insect enemies. Black Leaf 40 also spares bees—the pollenizers.

Black Leaf 40 is non-caustic and does not injure foliage or fruit. It leaves no objectionable residue... necessitates no washing of fruits. Black Leaf 40 is compatible with all standard spray materials, ideally suited for use in combination sprays.

Companion Product: *Black Leaf 155 — the "fixed" nicotine insecticide that provides non-caustic protection against codling moths, leafhoppers, leaf-miners, and summer aphids, without leaving undesirable residue.*

Tobacco By-Products & Chemical Corporation · Richmond, Virginia

The "LEAF" that protects the tree is "Black Leaf 40"

STATUS OF OFAR IS BRIGHTER

By LARSTON D. FARRAR
Washington, D.C.

THE THREAT to the existence of the Office of Foreign Agricultural Relations, perhaps the least costly of all Uncle Sam's many bureaus today, seems to have been dissipated by intelligent effort on the part of all interested, including fruit representatives interested in keeping alive every export possibility.

Stanley Andrews, the colorful director of OFAR, flew home from Burma in early March to present the case for his agency to the House Committee on Agriculture, of which Representative Harold D. Cooley (D.-N.C.) is chairman.

Upshot of the hearings was that Congressman Cooley pledged his committee's co-operation in seeing to it that OFAR be expanded and that the Department of State be shown the necessity of working ever more closely with the agricultural agency.

Truman Nold, executive director here of the National Apple Institute, was on the job behind the scenes attempting to get congressmen interested in fruit to contact fellow legislators who were on the agricultural committee.

Probable Recess in Hearings

The spray residue tolerance hearings are still going on here, under the aegis of the U. S. Food and Drug Administration, but some attempts are being made by fruit and vegetable interests to obtain a "recess" so that the latter part of the hearings can be conducted on a more logical basis.

Thus far, some 500 exhibits have been placed in the record. The vast majority of these have been designed to show the necessity for use of pesticides in the fruit and vegetable-growing industries.

The second phase of the hearings—from April 1 on, roughly—will revolve around the question of which pesticides have hazardous properties in the residue form. The $64 question to be answered, on the basis of all this testimony, is: How toxic is the residue of a given chemical at a given time?

Representatives of the deciduous fruit industry here point out the utter lack of definitive, provable research results in this field. They believe that it would be wise for the FDA to call a "recess" to the hearings along about April 1 so that the

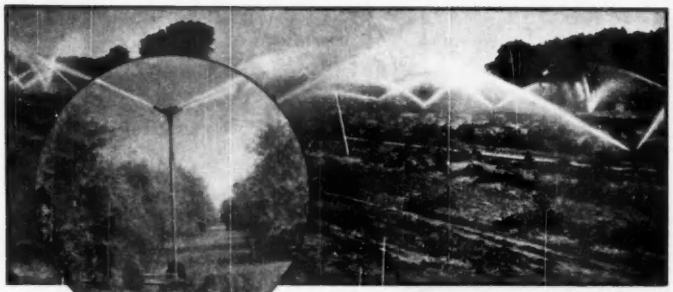
(*Continued on page 22*)

Irrigation News

WEATHER: Make your own!

FROM ALUMINUM COMPANY OF AMERICA

VOL. 1 NO. 2 FRUIT EDITION · APRIL, 1950



Portable sprinkler system irrigating raspberries.

"Big Gun" sprinkler used for overtree irrigation.

Take a "Rain Check" on those April Showers!

The first thing you'll need for successful sprinkler irrigation is an adequate, dependable, nearby source of satisfactory water. Usually natural streams or lakes will do. But sometimes they dry up during prolonged droughts. So many farmers have built 3 to 5-acre artificial ponds on their land to "save" spring rains. With your own reservoir, you're pretty sure to have plenty of water to irrigate crops during the dry summer months.

BONUS BENEFITS FROM SPRINKLER IRRIGATION

The supplemental water you give your crops with a portable aluminum sprinkler system does more than promote growth. Applied at the proper time and in the right amounts, it improves the size and flavor of tree fruits, increases the nutrients in pasture grasses, benefits the quality and salability of vegetables and berries. Water should be used to keep crops growing rapidly—not to resurrect them after they start to dry up.

Aluminum Pipe Easy to Move Keeps Labor Costs Down

Moving your portable sprinkler irrigation system from one setting to another is a simple chore when it's equipped with Alcoa aluminum pipe. One man can carry two—or even more—sections at a time, because aluminum pipe weighs only about ⅓ as much as steel. Sections most commonly used are 20 to 30 ft. in length and 2 to 6 in. in diameter. Because of the light weight of aluminum, pipe diameters up to 8 inches are entirely practical. Quick-latching flexible couplings, fitted to the ends of pipe sections, make it easy to join or disconnect them—allow pipe lines to conform to sloping or rolling ground.

Sprinklings

Since Alcoa aluminum pipe is so smooth inside, water flows through it with little resistance—requires less pumping power.

• • •

For overtree irrigation, sprinklers are mounted on aluminum risers as high as 20 ft.

• • •

Alcoa aluminum pipe is made of alloy 63S-T6, a tough, heat-tempered metal designed to stand up under severe usage.

Michigan Growers Get More and Better Fruit with Portable Sprinkler Irrigation

Up in Michigan, more and more growers are finding how well it pays to supplement nature's rainfall with sprinkler irrigation of berries and tree fruits. They not only get larger yields and better quality fruit—they get their products to market earlier, when prices are high.

In Van Buren County, a large grower has a portable sprinkler system that can irrigate 400 acres. In the summer of 1948, he was mighty glad he had it. He watered 15 acres of strawberries 4 times ahead of picking, 3 times during picking. Result—his irrigated yield was 428 crates per acre, compared to only 275 crates per acre unirrigated. He uses sprinkler irrigation on raspberries, too. Water comes from three wells, is distributed through over 7,000 feet of portable pipe.

The manager of a big farm in Allegan County stresses higher fruit quality as the big advantage of sprinkler irrigation. Apples and peaches are larger in irrigated portions of orchards, he reports. High yield and high quality may be even more important, he feels, should fruit prices suffer a drop. Water for his orchards is lifted 95 ft. from Lake Michigan.

Free Booklet Answers Many Questions About Irrigation

Would you like to know more about portable sprinkler irrigation systems? How they are making farms more profitable? What equipment is needed? How to install a system? How much a system costs? Something about sources of water?

These and many other questions are answered in this 32-page book, "Portable Sprinkler Pipelines to Profit." It's free . . . mail the coupon today.

OFAR STATUS

(*Continued from page 20*)

results of the first three months of testimony could be studied and collated. At the same time, these representatives would like to see a broadening hunt for more adequate evidence on which to base answers to the $64 question.

Unless something "startling" does develop, fruit growers need not be worried about the injection of any emergency tolerance residue limitations *this* year, at least.

Magnuson Amendment

The so-called "Magnuson Amendment," which would give the Secretary of Agriculture the authority to make a "finding" in case imports of agricultural products into the U. S. were disturbing the market situation of surplus crops grown in this country, has a 50-50 chance of passage, in the opinion of shrewd capital observers.

The amendment, attached to the Commodity Credit Corporation legislation in the Senate, was introduced by Senator Warren G. Magnuson (D.-Wash.) and is expected to obtain the support of most "high tariff" members of the Senate, plus many farm State senators who normally vote with the administration. The House of Representatives may prove to be the amendment's nemesis.

Under present law the U. S. Tariff Commission has authority to make a "report" to the President on such imports if he requests the commission to do so. It isn't very likely that Mr. Truman would make such a request since he first would have to be prodded by the Department of State, which usually takes a dim view of any move to discourage imports into America.

Everybody in the USDA favors the amendment, although none will say so publicly. If it were passed, imports of fruits from other nations, as long as there are surpluses of such fruits in this country, likely could be stopped, if the Secretary of Agriculture could get the President's cooperation, which would be far more likely if the Magnuson Amendment were passed than it is now.

ECA Future

Economic Co-operation Administration officials are getting set for a pretty deep slash in their funds for the next fiscal year—maybe as much as one-third being whacked off their request of $2.8 billion. If the slash comes, it will virtually negate any hopes the fruit industry may have for purchases such as those made by Great Britain several months ago.

Six-Year Orchard Test Shows Cumulative Benefits of FERMATE On Fruit Yield and Quality

In a New York State apple orchard, six years of tests show that "Fermate" fungicide improved the yield of picked, scab-free fruit by 74% and increased the total yield 59%, as compared to "mild" sulfurs.

This cumulative test over six years shows the exceptional value of this effective organic fungicide. "Fermate" controls scab without injury to the foliage, and in applications at the time of blossom it improves fruit set over that permitted by harsher fungicides. Even in hot weather, "Fermate" does not produce leaf burn. As a result, the foliage grows to its fullest vigor and manufactures more food to grow a bigger crop of larger, finer apples.

On apples and pears, "Fermate" has the additional advantages of controlling black rot, sooty blotch and mildew, as well as cedar-apple rust. It is also exceptionally effective, as well as safe for control of brown rot of peaches, plums and cherries, grape black rot, raspberry anthracnose and cranberry fruit rots. Many experiment stations recommend "Fermate" as a safe fungicide to use on sweet cherries for control of leaf spot and brown rot. Both sweet and sour cherries are sensitive to certain other fungicides in early spring, but "Fermate" provides excellent leaf spot control without danger of this cold weather damage.

For peaches, Du Pont "Zerlate" organic fungicide is the recommended control for brown rot, since its light-colored residue does not show on the fruit, yet protects it right through harvest and shipping.

Spray mixtures are easy to make with "Fermate." It is compatible with almost all other fruit spray materials. Since it can be used with summer oil, it fits well into the pear spray program for psylla control.

DU PONT CHEMICALS FOR THE FARM INCLUDE:

Fungicides: PARZATE® (Liquid and Dry), FERMATE®, ZERLATE®, Copper-A (Fixed Copper), SULFORON® and SULFORON®-X Wettable Sulfurs . . . *Insecticides:* DEENATE® DDT, MARLATE® Methoxychlor, LEXONE® Benzene Hexachloride, KRENITE® Dinitro Spray, EPN 300 Insecticide, Calcium Arsenate, Lead Arsenate . . . *Weed and Brush Killers:* AMMATE®, 2,4-D, TCA and 2,4,5-T . . . *Also:* Du Pont Cotton Dusts, ®Du Pont Spreader Sticker, PARMONE® Fruit Drop Inhibitor, and many others. ®Reg. U. S. Pat. Off.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

New Control For Mites:

EPN 300

INSECTICIDE

Now fruit growers can clean up mites with fewer spray applications, by using Du Pont EPN 300 Insecticide. Du Pont EPN 300 Insecticide controls many kinds of mites: European red mite, two-spotted mite, Pacific mite, Willamette mite and clover mite. It is excellent for use on apples, pears, prunes, plums and cherries. EPN 300 Insecticide is compatible with other commonly used pest-control chemicals including "Fermate," "Deenate" DDT and "Marlate" 50 Methoxychlor insecticide. It is formulated as a wettable powder for ready use.

EPN 300 is one of the least toxic of the organic phosphorus insecticides in common use, but every user must take suitable precautions as indicated on the label.

• *To obtain "Fermate," EPN 300 Insecticide and other Du Pont agricultural chemicals, see your local dealer. Also ask him for free leaflets that give further details, or write to Du Pont, Grasselli Chemicals Dept., Wilmington 98, Delaware.*

DU PONT

BETTER THINGS FOR BETTER LIVING

. . . THROUGH CHEMISTRY

IN THE NEWS

DEAN STANLEY

Dean Stanley

Dean Stanley, president and general manager of the Stanley Fruit Company of Phoenix, Ariz., has been appointed as a new member of the Agricultural Research Policy Committee to replace C. W. Kitchen who has resigned.

Mr. Stanley has been active in farm organizations and food and trade association work for approximately 30 years. Since 1918 he has engaged in general farming in the irrigated areas of Arizona, New Mexico, Colorado, and the Imperial Valley of California. Mr. Stanley has been chairman of the Vegetable Advisory Committee, a member of the board of directors and past president of the Western Growers Association, and has served as a member and chairman of the Arizona Commission of Agriculture and Horticulture.

ERNEST HART

Ernest Hart

At a recent meeting of the board of directors of the Food Machinery and Chemical Corp., Ernest Hart, vice president, was elected to the board.

Associated with Food Machinery for 34 years, Mr. Hart is in charge of FMC's Niagara Chemical Division at Middleport, N. Y. A well known figure in the field of agricultural chemicals, Mr. Hart was recently elected president of the National Agricultural Chemicals Association.

WALTER S. HOUGH

W. S. Hough

A manuscript to be titled "Spraying, Dusting, and Fumigating of Plants" has recently been completed by Dr. Walter S. Hough of the Winchester Research Laboratory. To be published by the Macmillan Company, this will be a reference work dealing with the control of fungi, insects, and various other pests. Other subjects will include spraying and dusting machines, pesticides, and fumigation.

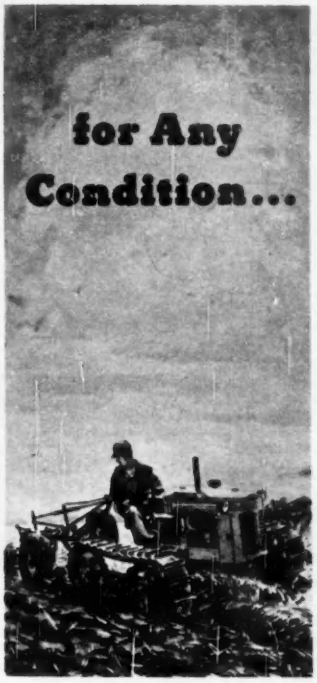
Dr. Hough started the Winchester Research Laboratory, a division of the Virginia Agricultural Experiment Station, in 1921 and has been doing research with insect control since that time.

GEORGE E. MATTUS

G. E. Mattus

New associate professor of horticulture at the Virginia Polytechnic Institute is Dr. George E. Mattus. He is directing research on fruit and vegetable harvesting, handling, transportation, and storage.

Dr. Mattus received his B.S. and Ph.D. degrees from Cornell University where he had experience with storage research. He also held a teaching assistantship at the University of California where he conducted experiments in harvesting and transportation of fruit.



an OLIVER Crawler is better!

When spraying schedules must be met in spite of mud . . . when seeding steep slopes . . . when soil is sandy or sticky or soft—that's when an OLIVER Crawler pays off!

OLIVER Crawlers are built especially for the diversified farm in sizes and models to handle a multitude of ordinary and odd jobs . . . from land clearing to caring for cultivated crops. The versatile Model "HG", for example, is available in four tread widths—31, 42, 60 and 68 inches—and with ample clearance for working in row crops. And, the mighty Model "D" has plenty of power to hustle along multiple implement hook-ups in large scale operations.

Ask your neighborhood OLIVER dealer to help you pick the power that meets your requirements best. Also available is a full line of soil-saving machines that fit OLIVER Crawlers —loaders, 'dozers, terracers, etc.—plus a wide variety of mounted and trailer-type tools. The OLIVER Corporation, 400 West Madison Street, Chicago 6, Illinois.

OLIVER

"FINEST IN FARM MACHINERY"

The OLIVER Corporation
400 West Madison Street, Chicago 6, Illinois

Please send me folder describing OLIVER *Crawler* Tractors, plus allied equipment and mounted implements.

Name.....

Post Office.....

Rural Route.....*State*.....

I farm.....*acres.* F23-4

NUT GROWERS NEWS

Pecan Improvement

FULTON COUNTY, Kentucky, is typical of a considerable range of territory along the central Mississippi River and its adjacent tributaries where native pecan trees grow wild and often produce abundantly in the better drained soils of a land which frequently is flooded for short periods. Some of the larger trees in the county have yielded from 300 to 700 pounds of pecans in the shell.

These seedling nuts are cracked by a plant at Hickman, Ky., which draws also on the native crop from portions of Illinois, Missouri, Tennessee, and Arkansas, to turn out about a million pounds of shelled kernels during an eight-month period each year.

Top-Working Program

"Realizing that this industry is here to stay, and that many farmers of that district have numerous young seedling pecans growing on their farms, the Kentucky Agricultural Extension Service has launched a program of top-working these seedlings with some of the known, improved varieties."

Thus Extension Horticulturist W. W. Magill reported on the Kentucky pecan improvement at the 39th annual convention of the Northern Nut Growers Association. "The beginning of this top-grafting program was in late April, 1948, when some 200 trees were top-worked. We find that over 90 per cent of the five to 10-year-old trees that were grafted have developed from two to eight feet of new growth from the graft, in the first year.

Hardy Varieties Selected

"The best information available from pecan authorities was that this southwestern Kentucky area approaches the northern limit of successful production of southern pecans, and that our success with pecans here could best be assured by top-working to the hardy varieties of more northern origin, such as Niblack, Major, Greenriver, Giles, Goforth, and the like."

Mr. Magill is of the opinion that other varieties now growing as seedlings in the Reelfoot Lake area of Kentucky and Tennessee, or across the river in Missouri, may prove equally as good if not better than the presently named varieties. — *J. C. McDaniel, Secretary, Northern Nut Growers' Association, c/o Tenn. Dept. Agr., Nashville 3, Tenn.*

Built better for your kind of driving!

The Styleline De Luxe 2-Door Sedan

This rugged dependable Chevrolet for '50 really earns its keep!

Whether you choose the new 105-h.p. Valve-in-Head engine with Powerglide automatic transmission,* or the rugged standard Valve-in-Head engine with Synchro-Mesh transmission, you can trust your Chevrolet to be ready for any driving assignment . . . in any kind of weather.

Here's the car that has everything you want—that's right for you seven days each week!

Around the farm, you'll find that Chevrolet has outstanding power and stamina. Work this rugged beauty round the clock every day—your Chevrolet can take it!

And for all-road pleasure, there's no car in the low-price field that matches Chevrolet's riding and driving ease. It's designed from the wide tread tires on up to carry you and your family more miles . . . in more comfort . . . for more years.

Chevrolet for '50 is as handsome as it is powerful and sturdy, too. Every one of the fourteen new Styleline and Fleetline body-types has a distinctively practical styling that is beautiful for keeps. They'll take the most rugged going—and still stay so good looking that you'll be proud of your Chevrolet for years!

Add up these exclusive Chevrolet advantages—compare Chevrolet's price. You can't help . . . but agree that Chevrolet offers more value—that Chevrolet again is first and finest at lowest cost! See your Chevrolet dealer today.

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

CHEVROLET

FIRST . . . and Finest . . . at Lowest Cost!

Longest, heaviest car in its field. Chevrolet for '50 is really solidly built—even the muffled click as its doors swing shut tells you of Chevrolet's big car construction. And it's a great feeling to know that you have those proved Certi-Safe hydraulic brakes with rivetless linings.

Space where you need it when you need it—that's the roomy new Chevrolet for '50! Your passengers can really relax and stretch on those generous "five-foot" seats—spacious comfort that leaves you fresh at the end of a long trip. You'll like that giant-size trunk, too.

Unisteel Body by Fisher, Center-Point Steering with Unitized Knee-Action ride, airplane-type shock absorbers, Panoramic Visibility—these are just a few of the big car features that combine to make Chevrolet for '50 a better-riding, better-handling, safer car than ever!

Good looks that last! New Style-Star Bodies by Fisher in sparkling color harmonies and new two-tone interiors make Chevrolet a durable beauty inside and out. And just wait till you experience the effortless, no-clutch handling of the sensational new Powerglide automatic transmission!*

*Combination of Powerglide automatic transmission and 105-h.p. engine optional on De Luxe models at extra cost

AMERICA'S BEST SELLER . . . AMERICA'S BEST BUY

GLYOXALIDINE FOR CHERRY LEAF SPOT

By H. W. THURSTON, JR.
The Pennsylvania State College

IN NOVEMBER, 1946, AMERICAN FRUIT GROWER announced to orchardists a new and promising fungicide for use on cherries. This fungicide was an organic chemical known as glyoxalidine or, more simply, Compound 341. It was the result of research by chemists and plant pathologists of the Carbide and Carbon Chemicals Division, Union Carbide and Carbon Corporation, who at that time were comparative newcomers in the field of manufacturing agricultural chemicals.

While the cherry grower has numerous diseases and insect pests to fight, the leaf spot disease, and the early defoliation that so frequently accompanies it, undoubtedly remain the No. 1 problem.

In southern Pennsylvania, an outbreak of leaf spot can be counted on in any year that the early season rainfall is adequate for the spread of the fungus. Failure to control leaf spot in Pennsylvania in 1945 caused the loss of 25,000 trees, and an additional killing of buds, spurs, and whole branches on many thousands more.

Higher Yields

Dr. F. H. Lewis of the Pennsylvania Fruit Research Laboratory is authority for the following figures: In 1945, check trees in his spray plots were two-thirds defoliated by June 28 and completely defoliated before October 1. In the same plots, trees sprayed with glyoxalidine retained 99 per cent of their foliage on June 28, and 95 per cent on October 1.

In 1946, these plots were sprayed alike, yet those which had suffered severe defoliation in 1945 yielded only 36 pounds of cherries per tree in 1946, while those trees which retained their foliage in 1945 yielded 107 pounds of cherries per tree in 1946.

In addition to this great difference in yield, there was also a pronounced difference in grade. The 36-pound yield graded out 56 per cent No. 1 cherries and the 107-pound yield graded 79 per cent No. 1 cherries.

Glyoxalidine is not the only fungicide that will control leaf spot, but the evidence that it will give satisfactory control of this disease with a

minimum of injury to fruit and foliage, and that its use actually promotes higher yields and increases the health and vigor of the trees, is steadily accumulating. As a result of four years of testing in New York State, the conclusions (as yet unpublished) of W. D. Mills and J. D. Van Geluwe are that glyoxalidine has given consistent and outstanding control of cherry leaf spot.

A Protective Fungicide

It should be emphasized that glyoxalidine is a protective fungicide and not an eradicant. It can be expected to give its best control only when applications are properly timed on a preventative schedule. Where timing is poor, copper fungicides may give better control.

It has long been known that spray materials may affect the size of cherry fruit. The degree of the effect caused by various materials is itself variable from year to year, and also from one producing area to another. Unsprayed fruits are usually the largest, while copper-sprayed fruits are frequently reduced in size, Bordeaux mixture causing the greatest amount of dwarfing. Glyoxalidine has consistently caused little or no dwarfing of the fruit.

Solids Content

The relation between size of fruit and its sugar content is a matter which is currently receiving attention. Mills and Van Geluwe reported that, for 1949, fruits sprayed with glyoxalidine had the highest solids content of the various materials in their tests. Earlier work by Lewis indicated that copper-sprayed cherries had the highest solids content, but that the difference in total solids between copper-sprayed cherries and those sprayed with an organic fungicide such as glyoxalidine could be expected to be two per cent or less.

Protective fungicide being applied to cherries on Horn Farm, Sodus, N. Y., by J. D. Van Geluwe while Dr. W. D. Mills of N. Y. State Extension Service observes.

NATIONWIDE FRUITS

● **Calmeria, a highly productive,** shipping, and storage grape for California, is a new development of the USDA. It is a seedling of Ohanez (Almeria), the well-known midwinter storage variety it is expected to replace.

The greenish-yellow fruit of Calmeria is larger and somewhat sweeter than Ohanez, and the texture is firm and the skin sufficiently tough to hold up well in shipping and storage.

Calmeria is recommended by the USDA for trial in vinifera grape areas where the Ohanez and Emperor varieties are now grown. It matures from late September to early October in the Fresno, Calif., area and requires at least 200 growing days between killing frosts.

● **Grape leaf injury** caused by overwintering leaf hopper adults can be prevented with one application of DDT before the grapes bloom. In tests conducted by the New York Experiment Station, one application of eight ounces of actual DDT in 100 gallons of a 2-4-100 Bordeaux mixture with a spreader gave adequate control for the entire season. Thorough application is necessary.

● **Where grapes are produced** in quantity, the fertility tests of the Erie County (Pa.) Field Research Laboratory will prove of interest.

Grape stems and grape pomace, also manure, when applied every third year to vineyard soil at the rate of six tons per acre, resulted in significant increases in grape production, the tests showed.

Stems are slightly superior to manure in increasing grape yields, the laboratory has found, whereas pomace has not proved to be quite so effective as either stems or manure.

A six-ton per acre application of stems contains about 60 to 70 pounds of nitrogen, 60 pounds of phosphoric acid, and 120 pounds of potassium oxide according to the laboratory. A similar amount of pomace contains 50 to 60 pounds of nitrogen, 30 pounds of phosphoric acid, and 12 pounds of potassium oxide.

● **A new blackberry variety**—Olallie—has been released by the USDA and the Oregon Experiment Station for production in the West. Olallie is said to retain its bright black color and firm texture through canning and freezing. It is a vigorous-growing, trailing type, and produces high

yields of berries that are somewhat longer than Boysen and nearly as large. Flavor of the berries grown in California is said to be better than that of Boysen and in Oregon not as high in some seasons as Boysen. The variety is a cross between Black Logan and Young.

● **In areas where apple scab** is likely to be a problem, a thorough ground spray of the sodium salt of dinitro-ortho-cresoi (Elgetol or Krenite) as the buds begin to swell, is recommended to reduce spore infection which may result from the overwintering fungus in the fallen leaves in the orchard. Plant scientists of the Wisconsin Experiment Station and the USDA recommend one-half gallon of the chemical to each 100 gallons of water and 400 gallons of the mixture to the acre.

The ground spray will kill up to 95 per cent of the spores and eliminate 90 per cent of the infection on the young leaves and fruit, they state —provided it is applied under the trees, between the trees, and in fence rows and uncultivated boundaries of the orchard.

This spray should be followed by the regular tree sprays of wettable sulfur, lime sulfur, or Ferbam, applied according to State experiment station recommendations.

In New York experiments, spray applications of urea—a soluble form of nitrogen—on McIntosh trees not only maintained yields of fruit but reduced the amount of scab. The urea was used in the first three sprays following bloom—three, five, and eight pounds in 100 gallons of spray containing wettable sulfur and lead arsenate.

● **The Franklin variety** of apple—a cross between McIntosh and Delicious developed by the Ohio Experiment Station—is recommended by the station for limited commercial planting to extend the McIntosh season. In 1949 fruits of the new variety bore 17 days after McIntosh. They were large, well-colored, attractive, and of good dessert quality. The variety has some of the disadvantages of McIntosh, being susceptible to scab and bruising, and it scalds badly if left in cold storage until January. Trees will be available at nurseries in the fall of 1950.

● **A synthetic latex** used in liquid form at about 70° F. or room temperature holds promise of being an effective material for preserving scion wood. Scions dipped in Geon 31X are covered with a tight elastic film which is said to keep the wood in condition for grafting into the summer and when grafts are made, the scions need not be waxed.

A NEW STRAWBERRY

CROSSING the Aroma and Blakemore strawberries has produced what many strawberry growers consider the perfect variety for Missouri. Named Armore by the originator, H. S. Swartout of the University of Missouri, the variety has been tested extensively in the important growing areas as Mo. No. 164.

The berries are large sized, bright cherry red in coloring, and firm for shipping to distant markets. Plants are strong and vigorous and are prolific producers of quality fruit that promises to make an important place for this new variety on the market.

The yields have been as much as 100 more crates per acre than the nearest competing varieties under identical conditions.

Fruits begin maturing a few days before Aroma, and the plants continue to produce after all the Aroma berries are harvested. In contrast to many varieties, the size remains uniformly large even for the last pickings. Experimental plots in Missouri and Kansas have produced 525 crates per acre. A substantial acreage of the variety is scheduled for planting in Missouri and neighboring States this spring from the plants that are currently available.—*Paul Stark Jr.*

BOOK REVIEWS

● **Evergreen Orchards** *($6.00) Lea & Febiger*, by William Henry Chandler. To supplement his *Deciduous Orchards* Dr. Chandler has now written about the evergreen fruit trees such as citrus, dates, olives, coconuts, etc. *Evergreen Orchards* deals with the evergreen tree and its fruit with a detailed discussion of the orchard environment and also includes individual chapters on the characteristics of each of the more important fruits.

In his preface Dr. Chandler states his purpose in writing this book when he says, "A study of these species should enrich the student's contact with horticultural scientists of the world, bring to his attention research reports by many interesting workers who now seem to be largely ignored in American teaching."

Dr. Chandler was selected as one of the three greatest living horticulturists by AMERICAN FRUIT GROWER in 1947, and his books are only one of his many contributions to the field of horticulture.

Orders for books on fruit growing and allied subjects may be sent to AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland 13, Ohio, with check or money order enclosed.

WHY READ A SPRAY DOPE LABEL

(*Continued from page* 16)

Dowspray Dormant. The use recommendation was two quarts in 100 gallons of water.

We talked with this grower in mid-summer. He said, "Say, Don! I got good control with DN-289. But, man, I can't afford to continue to use it!"

"I can't understand that," I said. "It calls for only two quarts. Two quarts is not too expensive—how come?"

"Two quarts?" he said. "Well, I'll be—I used two gallons!"

"Two gallons!" I said. "You could have burned all the buds off your trees!"

"I'm just lucky!" he said. "I got fine results."

Many of the newer products require a careful study of the label and the accompanying literature to obtain the desired results. Great strides have been made in helping to produce better crops for less by the use of chemistry in agriculture. Even greater benefits will come from the chemists' test tubes if the products are properly used.

Take care, then—don't be the fool who walks in where angels fear to tread—it may make an angel out of you if you don't *read the label.*

THE CONTROLLED TREE

(*Continued from page* 11)

ation, but as yet they have shown nothing outstanding. The remaining —Malling I, II, V, VII, IX, XII, XIII, and XVI, have a record of performance that can be told.

Malling IX is the most dwarfing. It produces a garden plant no taller than a man—highly useful for amateur planting but unsuited to the temperament of American apple growers. Next in line is Malling VII, which produces a tree about the size of a peach tree, depending on the variety. With vigorous growing varieties, as Northern Spy, this rootstock may have a place. Certainly it has a place in the home garden where the Malling IX produces too small a tree.

Semi-Dwarf Stocks

Then come Malling V and Malling II, both of which may be classed as "semi-dwarfs." Malling V is a good nursery plant and produces a tree slightly smaller than Malling II. Malling II has been widely used in Europe and is also suitable for America, but it roots slowly in the nursery and is not liked by nurserymen for this reason.

Malling I and XIII are next on the list, called variously "semi-dwarf" and "semi-standard," depending on the variety grown upon them and the soil and location where they are grown. Malling I is quite precocious in fruiting. It seems well adapted to the McIntosh variety, trees of which attain the size of a small sour cherry tree and which begin bearing at three to five years of age. Malling XIII makes a tree slightly larger, less early in fruiting, but seemingly adapted to heavy soils. Golden Delicious, Cortland, and Turley have done well upon it.

This leaves only the Malling XVI and XII. The former is an old German stock which produces a full size tree in Europe but one perhaps slightly smaller than standard size in America. Malling XII produces a full size tree.

At the moment, most interest centers on Malling IX for garden use; Malling VII for garden planting and for limited commercial operations with vigorous, late-bearing varieties; and Malling I for semi-dwarf, commercial plantings. Malling II, XIII, and XVI may prove their worth but at present are not in the foreground.

Extensive Testing Necessary

The problem has reached a place where it is time that nurserymen and fruit growers took hold. The Malling rootstocks are in the same position as a new variety of fruit which has passed an initial test. They offer

some promise—how much, nobody knows. There will need to be more trials and testing over a wider range of conditions than can be done by experiment stations alone.

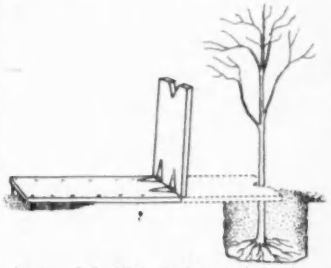
From here on, those interested must accept a degree of calculated risk. Growers should begin to ask for trees from nurserymen, nurserymen should become more interested in propagation, and somebody somewhere should begin propagation of rootstocks on a more extensive scale for the nursery industry.

It may be found in time that there are faults in these rootstocks that will condemn them. It may be that as yet unknown American rootstocks will eventually answer the problem for the small, controlled tree. But at this writing it would seem that the Malling rootstocks have proved worthy of pilot-scale trial and that the fruit industry must accept some of the testing on a limited scale as a calculated risk of the business.

PERFECT ALIGNMENT

IN striving for perfect tree alignment in the young orchard, a planting board is useful to save resighting of a tree after the hole is dug. The conventional board usually requires two temporary stakes which mark the position of the board in realigning the tree after the hole is dug. If one of the stakes is accidentally kicked out of place, the exact position of the tree is lost.

One of the slickest tricks in planting boards I have seen was brought to my attention by Clyde W. Rocky, a retired fruit grower of Berrien County, Michigan. It consists of two



pieces of 8x10-inch board joined together by a 6-inch hinge.

One side of the board is held in place on the ground by several 20-penny spikes The other side of the board is "V"notched to fit against the tree-marking stake.

The notched end is raised and thrown back while the hole is dug and can be swung forward to the original position to determine the exact placement of the tree. The board is always in correct position—no stakes to drive or carry.—*Donald Cation, East Lansing, Mich.*

CHEMICAL THINNING

(*Continued from page* 14)

in thinning some fruits and not others could be partially explained on the basis of vigor. The diameters of 900 dormant Wealthy spur flower buds were measured on nine limbs. They were tagged and classified in four groups according to their size. Then at calyx and two weeks later sprays of the hormone were applied. Three different limbs were sprayed each time and three were left as checks.

Data in Table 1 indicate that vigor of the blossom bud or spur is an important factor in determining why this hormone thins some blossom clusters to a greater extent than others.

TABLE 1. Influence of an NAA material on the set of Wealthy spur flower buds.

Treatment	Size of dormant flower buds (mm.)	Fruits per 100 flower buds
Check	—4.1	28.6
	4.1-4.7	31.5
	4.8-5.4	43.1
	5.5+	71.9
20 ppm. at calyx	—4.1	0.0
	4.1-4.7	12.7
	4.8-5.4	22.7
	5.5+	56.3
40 ppm 2 wks. from calyx	—4.1	0.0
	4.1-4.7	11.5
	4.8-5.4	31.2
	5.5+	55.5

This appears to be an advantage of the material because greater thinning of poor quality fruit on the weak spurs in the interior of the tree is accomplished. It also indicates that it may not be desirable to spray-thin trees low in vigor. Although vigor appears to be important in determining the extent of thinning accomplished by this hormone, there are unquestionably other factors which influence the degree of thinning. For instance, it appears that at a given concentration a variety may absorb varying amounts of hormone, depending upon the amount of leaf surface present to absorb the material and possibly the influence of such environmental factors as temperature on the rate of absorption.

During the past two seasons most of our emphasis in Massachusetts has been on the use of this hormone as an after-calyx treatment. Chemical thinning 10 days to 3 weeks after calyx, for instance, would allow one to determine the necessity for thinning more accurately than at bloom or petal fall. It is recognized that delaying the application until after calyx will be at the sacrifice of fruit size and possibly reduce the chances of annual flowering with some varieties compared to

HANDY ANDY

This homemade cultivator plow is one of the handiest tools on the place, says Russell Eggert, superintendent of the University of New Hampshire Horticultural Farm. It meets the needs of the orchardist, berry grower, and market gardener for a tractor mounted device that will operate between wide rows at adjustable depths, prepare seedbeds in hard-to-get-at areas, till young orchards, clean borders, etc. The sturdy, double-spring shanks from an old-style cultivator give its duckfoot the firmness they need for plowing. The frame was welded to hold seven sweeps which cover a five-foot wide span.—E. Gilman.

the same degree of thinning at blossom time or calyx. However, the matter of safety, if it is found to be safer, might justify the sacrifice.

With the heavy setting varieties Baldwin, Wealthy, Golden Delicious, and Early McIntosh, providing the trees were in a high state of vigor, satisfactory commercial thinning has been obtained by NAA materials at calyx and from two to four weeks thereafter. Table 2 includes some data on Baldwin which are representative of results obtained from these varieties.

TABLE 2. The influence of an NAA material applied 2 weeks after calyx on the set, yield and size of Baldwin.

Treatment	Fruits per 100 blossoming clusters	Av. Total Yield per tree (bu.)	Av. Yield per tree 2½" and up
Unthinned	91.6	16.1	3.5
Sprayed 30 ppm	23.0	9.2	8.6

In our after-calyx tests, concentrations ranging from 6 to 16 ounces (15 to 40 ppm) per 100 gallons of water have been used. Sprays containing 8 to 12 ounces (20 to 30 ppm) applied 10 days to two weeks after calyx have approximated the most desirable concentration range for the four varieties previously mentioned.

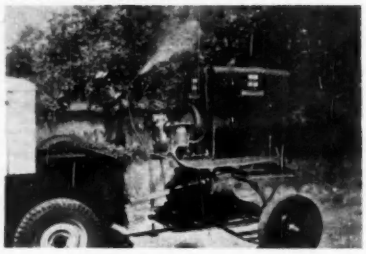
Although after-calyx treatments with NAA have some advantages, they also have several disadvantages. The apparent disadvantages are: 1) NAA may cause considerable permanent foliage injury to some varieties. In Massachusetts, for example, Duchess has been very susceptible to injury and several other varieties are apt to exhibit some foliage injury. 2) NAA has been somewhat erratic in performance. In other words, in apparently similar blocks applications of this material at a comparable time and concentration may yield different results. 3) To date sprays applied after calyx with NAA materials have failed to thin some varieties. In 1949, tests in Massachusetts on both Red Astrachan and Gravenstein were failures, because of this fact. Whether different timing or concentrations will overcome this difficulty is not known.

At the present time it appears that the use of NAA materials for thinning apples is still a rather delicate operation requiring good judgment. The point has not been reached where their use can be recommended as one might recommend the use of a fungicide for apple scab control. Growers should gain some first-hand experience with NAA materials before using them too generally. Considering the present drawbacks of the NAA materials, it appears that there is still a place for a dinitro in the chemical thinning program.

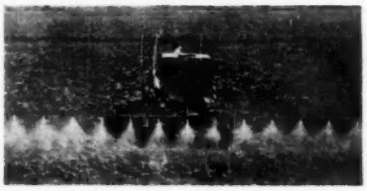
NEW FOR YOU

Outstanding

Peerless means without peer, and the new 1950 Hudson line of sprayers is just that. Fully redesigned, incorporating the best in agricultural engineering, and still maintaining the sturdiness of Hudson rigs which growers everywhere for more than 45 years have found profitable to rely on, the new Hudson line deserves your careful consideration. The 8 g.p.m., 150-gallon, 800-pound pressure, 2-cylinder rig mounted on the new Hudson Adapto trailer means positive control of orchard insects and diseases.



All units are so designed that parts are easily interchangeable and, in a flash, the 150-gallon orchard rig can be converted into a row crop or weed sprayer.



The new Hudson boom for spraying weeds actually goes around those places where heretofore it was necessary to detour with your tractor.

Why wouldn't it be worth while to write the H. D. Hudson Co., 589 E. Illinois St., Chicago 11, Ill., for their latest booklet which will be sent to you immediately. We saw the new Peerless line in operation at the Hudson experimental orchard, and it looks great.

- DEERE DISK TILLER
- HUDSON SPRAYERS
- ORCHARD HEATER

Low-Cost Orchard Heater

Interest in orchard heating in northern areas is on the increase. Along with this interest has come the development of an inexpensive orchard heater which is just being placed on the market by the United Stove Co., Ypsilanti, Mich. Made of sheet steel, the kettle-type drums burn low grade oil at the rate of about one-half gallon per hour. Once lit the heater will burn until the fuel is consumed. The turned up vanes on the cover induce the right amount of draft to make the flame burn high while keeping fuel consumption at a minimum. In tests at Michigan State College temperatures in the orchard were held at an average of 5½ to 6 degrees above the outside temperature.

New Disk Tiller

Just in time for spring planting is the new John Deere Surflex Disk Tiller, a tiller that combines great capacity with ground-hugging flexibility. Available in 12-, 16-, and 20-foot sizes, the Surflex has such important features as gang linkage to prevent ridging and gouging, a single control (manual or hydraulic) for raising or lowering all gangs simultaneously and uniformly, a simple hitch that permits short turns without fouling, and Timken tapered roller wheel bearings and ball-bearing gang-shaft bearings. If you are planning to set out a new orchard or berry patch this spring, you will want to know more about this tiller. Write John Deere, Moline, Ill.

FRUIT POLLINATION

(*Continued from page* 13)

branches are placed upon a table in the orchard, around which sit those who extract the pollen. This method is sometimes modified so that only spurs are used.

Eight-mesh hardware cloth or screen is commonly used for rubbing off the anthers. The hardware cloth is substituted for the fruit-jar cap when a fruit jar is used for collecting pollen. When a box is used, a piece of the hardware cloth is fastened rigidly over the box.

The stem of the blossom is grasped between the thumb and forefinger and the blossom is pressed against the screen so that the stamens stick through the screen. With one or two swipes, the anthers are pulled loose and drop into the jar.

Green pollen never should be held in quantities nor at temperatures that permit heating. For curing, place it one-eighth inch deep in trays. Slick, stiff paper is preferable for making the trays. Curing requires approximately 36 to 48 hours at 68° to 70° F. Excessive heat may cause serious injury. Because of the danger of overheating, the curing trays should never be in the direct rays of the sun. Enough ventilation to keep the humidity about the same as that of a living room is desirable. When curing is complete, the pollen sacks are open and pollen dust can be seen on the walls of the tray.

The pollen is ready to use as soon as it is cured. If it cannot be used immediately, it should be held where it is dry and cool. If dry storage at about 34° F. is not available, the household refrigerator may be used. Here the lid of the pasteboard carton in which commercial pollen is shipped should be perforated to keep the pollen from becoming moist. The sooner it is used after curing, the better. The common household refrigerator has a dehydrating effect.

Applying the Pollen

Efforts are being made to develop laborsaving methods of applying pollen. With tree fruits, airplanes, bombs, shotguns, and sprayers are being attempted. With the many immeasurable factors at play in fruit pollination, there is danger of prematurely crediting success to hoped-for laborsaving methods. At the present time these methods are highly experimental and show little, if any, benefit. Small insect dusters, however, seem to give good results from the standpoint of getting the pollen on the pistils and of being faster than the hand brush method.

For practical purposes, pollen may

be applied to a single blossom during a period of approximately 48 hours, beginning when the blossom is nearly open. The pollinating period in a given orchard may be extended by starting when a good sprinkle of blossoms is out on the south side of the tree and coming back a second time to cover the other side.

The pollen may be applied with a small brush with fairly stiff bristles, the rubber end of a lead pencil, or the bare finger. A No. 4 pig-hair brush has been adopted fairly generally. Some growers, to make the pollen go farther, prefer to place a rubberband halfway down on the bristles and cut the bristles off square, one-fourth inch below the band. Others prefer to allow the bristles to spread out to ensure that all parts of the pistil are treated, even at the cost of extra pollen.

The pollen, which is usually carried in a small vial or a wide-mouthed bottle, must be convenient as you work. It is customary to carry it in the shirt pocket.

With practice, pollinators become skillful so that the pistils are reached with ease. Some prefer to make two "hits" for each blossom, one to get aim and the other to apply the pollen. One dip in the pollen bottle is adequate for six to eight blossoms. Ordinarily, it is best to start out with about one-fourth ounce of pollen and add to it as necessary.

The spacing of pollinated blossoms depends upon several factors. If labor is scarce, there may be time for covering only the windy side or the north side of the tree. In some cases, because work is faster from the ground, it may be advisable to work only from the ground. The proximity to pollen that may be brought in by natural means, also is a factor.

In general, it must be assumed that insofar as the artificially-applied pollen is concerned, it reaches only the blossoms you touch. It is true that if insects are working freely while you are working, they must carry some pollen. Unfortunately, they frequently are elsewhere at that time. They sometimes are credited for improving the set that resulted from artificial pollination when in reality the improvement is due to other factors. For example, in many orchards, insects bring considerable pollen in from other orchards. It is safe to assume that

(*Continued on page 42*)

FRUIT POLLINATION

(*Continued from page* 41)

with self-fruitful varieties, this factor during seasons of good insect activity must account for setting some fruit. The evidence at hand indicates it is hazardous to place much reliance upon insects for distributing pollen applied artificially.

It would seem, then, that you should pollinate as many blossoms as you want to set. One blossom in every fifth cluster on a tree in good bloom is not too far off.

We can aid natural carriers of pollen by placing bouquets in the orchard. These are effective only when the weather permits insect activity. There is usually at least a short period of such weather during each blossom period.

Place the bouquets where insects like to work. The warmer and sunnier the location, the better, as long as it is protected from the wind. A small bouquet per tree placed rather high on the south side is usually adequate. The most common method of bouqueting, however, is to place large branches in barrels of water on the ground.

The ideal stage for cutting the bouquets is when the most advanced blossoms are open. The sooner they are in water after cutting, the better. When convenient, place them in water immediately following cutting, especially if they must be hauled some distance. Cutting the branches off under water helps to keep them fresh.

HANDY ANDY

Spraying fruit trees from the ground may be a thing of the past with the use of spray tank equipped helicopters. One of these specially outfitted helicopters was used to spray the McIntosh orchards of George Parker and his neighbors, Hillsborough County, Wilton, N. H., with naphthalene acetic acid.

In the past regular airplanes had been tried to drop the concentrated "stick" spray. The experimental use of the helicopter was found to be far superior as it could travel slower than a plane and get much better coverage at the end of the rows and in corners where high trees or wires would have to be cleared by the faster machines.—C. L. Stratton.

STATE NEWS

(*Continued from page* 17)

VIRGINIA, *Mar. 14*—This state had a very mild winter until about the middle of February. Since then temperatures have dropped to as low as 10° above zero. Considerable killing of peach buds has been reported. Peaches in central Virginia are showing some pink. With temperatures as low as 10°, growers have cause to be alarmed over the peach situation.

To date no reports have been received of injury to apple buds. With three disastrous frost years in a row, Virginia apple growers hope Mother Nature will give them a break this year.—*John F. Watson, Sec'y, Staunton.*

TENNESSEE, *Mar. 15*—Orchardists still have a fighting chance to produce a good crop of peaches and a fair crop of plums and pears. Around one-third of the strawberry blossoms on the leading Blakemore variety already have been killed by frost and freezes during the abnormally heavy early bloom. Prospects on apples, just starting now to break their winter rest, are good throughout the State. Crops of all leading commercial fruits in Tennessee (except possibly apples) can be larger in 1950 than they were in 1949, if a normal percentage of buds now alive survive the next 30 days. This is what leading growers and experiment Station fruitmen report in a mid-March survey made by the State horticulturist.

The loss in strawberries is quite general, except that the newer Tennessee Beauty, Tennessee Shipper, and Tennessee No. 965, in that order, have survived the cold better than the early-blooming Blakemore variety. With the coming of warmer weather, strawberry growers should be alert to prevent still further losses due to strawberry weevil and crown-borer insects. They should apply dusts of 20 per cent Toxaphene or else equal amounts of DDT and Chlordane (five per cent of each) at the rate of 35 pounds per acre.

(*Continued on page* 45)

PROSPECTIVE FRUIT GROWER? With Grandpa looking on, 17-month-old Joe McDaniel, Jr. (son of State Horticulturist J. C. McDaniel) inspects March bloom on peach-apricot-plum combination tree at Nashville.

OPPORTUNITY ADS

Only 25c a Word—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN FRUIT GROWER, 1370 Ontario Street, Cleveland 13, Ohio

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BEES

PACKAGE BEES FOR MAXIMUM SET OF FRUIT. 3-lb. package with queen, $3.50. Without queen, $2.50. THE COFFEY APIARIES, Whitsett, Texas.

FLOWERS QUALITY ITALIANS: THAT WILL STAND test for honey gathers, gentle, prolific. Prompt, live delivery, guaranteed. Place orders early. Package with young queen 2-lb. $3.50; 3-lb. $3.45; 4-lb. $4.30; 5-lb. $5.30. Extra queens $1.00. FLOWERS BEE CO., Jesup, Ga.

STRONG COLONIES BEES FOR POLLINATION LAKE Ontario and Finger Lakes Region. Write C. A. JENKS, Canandaigua, New York.

ITALIAN QUEEN BEES $1.00 EACH. W. G. RALEY, Route 4, Montgomery, Alabama.

PACKAGE BEES 3 LBS. WITH QUEEN $4.75. HOWARD WEAVER, Navasota, Texas.

CHAINS

CHAINS—TRACTOR, TRUCK, ROAD GRADER, BUS. Write for circular, give tire sizes—Prompt shipment. HORNER TRACTOR SALES, Geneva, Ohio.

CIDER MILLS

FOR SALE: CIDER PRESSES NEW AND REBUILT, all sizes Farquhar and other makes; Apple Sizers and Apple Butter Equipment. W. G. RUNKLES' MA-CHINERY CO., 185 Oakland St., Trenton, New Jersey.

FOR SALE—EQUIPMENT & SUPPLIES

ATTENTION HOME OWNERS AND FARMERS. BIG savings are yours on Fence, Paint, Building Material, Appliances, Farm Poultry and Dairy Equipment . . . all in the big new Jim Brown Catalog. It's packed with over fifteen thousand outstanding bargains. Write today, it's FREE! BROWN FENCE AND WIRE DIV., Dept. F4, Cleveland 13, Ohio.

FOR SALE: "SPEED SPRAYER" 1946—110 H.P. Supply tank and transfer pump. "Friend" Sprayer—30 gal. per min. 500 gal. tank on 2 rubber tires. International 06 tractor. Grahill L4 Grader—100 bu. per hr. 4 sizes and eliminator. WILLARD FARNSWORTH, Waterville, Ohio.

COMPLETE Engine driven 10 KW, 110/220 volt, A.C. Lighting Plant. $850.00; 2500 Watt $295.00. 15 KW Generator ideal for tractor standby drive $490.00. KATOLIGHT, Mankato, Minnesota.

FOR SALE—MYERS 1948 THREE CYLINDER POWER Sprayer. Write for information to SAM KRUMMEN, Route 4, Bluffton, Indiana.

BEAN TRIPLEX SPRAYER, 300 GALLON TANK, 12 horse power engine. Friend FX22 Sprayer, 300 gallon tank, 30 horse power engine. Low price for quick sale. LAWRENCE MEISEL, 444 South Brentwood Blvd., Clayton, Missouri.

HARDIE HIGH - PRESSURE ENGINE - POWERED trailer sprayer. Top condition. 35 gallon pump. 25 horse Waukesha. 400 gallon wood tank. 9 x 24 tires. "Sprayrite" orchard boom. Hose and gun. $1250. "NE-RU-BAR" ORCHARDS. Route 1, Albion, Mich. Phone 4344.

2—300 GALLON HARDIE SPRAYERS ON RUBBER with 30 G.P.M. Pumps. 1 Cletrac Crawler Tractor. C. E. OPPERMAN, Birmingham, Ohio.

35 GAL. USED FRIEND SPRAYER. 20 GAL. USED Bean Sprayer. Both sprayers are in perfect condition and are guaranteed. Reasonable. SALEM SERVICE AND SUPPLY, Salem, Ohio.

FOR SALE: Heavy duty hydraulic brush pusher complete for AG Cletrac—8 foot cover crop orchard disc like new. RICHARD SCHAUER, Madison, Ohio.

JUST OUT! GET LARGEST AUTO ACCESSORY AND parts catalog in world. Over 15,000 items, including Hollywood accessories, hi-speed equipment, rebuilt engines; all parts and accessories for all cars, trucks. New, used, rebuilt! We have that hard to get part! Completely illustrated, jam-packed with bargains. Send 25c. J. C. WHITNEY CO., 1919-CX Archer Ave., Chicago 16, Illinois.

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PURE HONEY: THE VERY "ESSENCE OF CLOVER". Minnesota's finest extracted white clover honey with a mild pleasing flavor. 5 pound pail $2.60 postpaid, 60 pound can $9.00. You pay express. ROBERT E. DENNY, Roseau, Minnesota.

FOR SALE—DELICIOUS HONEY CLOVER OR BUCKwheat, 5-lb. can $1.35; six 5-lb. cans $7.50; 60-lb. can $10.00. Prepaid. FRED WRIGHT, Arkport, New York.

HORSE TRAINING

"HOW TO BREAK AND TRAIN HORSES"—A BOOK every farmer and horseman should have. It is free; no obligation. Simply address BEERY SCHOOL OF HORSEMANSHIP, Dept. 1384, Pleasant Hill, Ohio.

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IRRIGATION EQUIPMENT—IMMEDIATE DELIVERY of light-weight pipe. Complete systems, including pump, fittings and sprinklers. Featuring famous and exclusive McDowell automatic coupling and sprinkler that covers a little under three acres. LUNDQUIST COMPANY, INC., Putnam, Conn.

IRRIGATION. RAIN AGAIN WITH RONNINGEN. WE are engineers with 29 years experience specializing on irrigation systems for big acreage crops; mint, potatoes, general crops and orchards. McDowell portable irrigation pipe; Skinner sprinklers, pumps. Terms. Write for free bulletins. Engineering surveys free. Farms large or small. We irrigate them all. RONNINGEN ENGINEERING SALES, Vicksburg, Mich. Phone 5181.

MISCELLANEOUS

ADVERTISING PENCILS—KEEP YOUR BUSINESS before the eye of the public. Write for samples and prices. EASTERN ARTCRAFT, P.O. Box 5233, Philadelphia 26, Pa.

MAKE MONEY ADDRESSING ENVELOPES. OUR instructions reveal how. PAUL GLENWAY, 5713 Euclid, Cleveland 3, Ohio.

WOMEN TO SEW OUR READI-CUT "RAP-A-ROUND." Spare time—Easy profitable business. HOLLYWOOD MFG. CO., Dept. 4-4, Hollywood 46, Calif.

START YOUR OWN BUSINESS. SELL BY MAIL. Unusual opportunities. 10c brings 60 page informative trade magazine. ISBELL, Suite 619-AG, 216 West Jackson, Chicago 6, Illinois.

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ORCHARDS FOR SALE

50 ACRES: MODERN FOUR ROOM DWELLING AND 2 Car Garage; about 35 ACRES in Winter Apples, 10 to 30 year-old trees, healthy and well kept. About 18 miles to Cleveland or AKRON, OHIO; on State Route 176. Remarkably low priced at $22,000.00. FRED CLOGG REALTY, 8071 Broadview Rd., Cleveland 9, Ohio.

FOR SALE—79 ACRE HUDSON RIVER FRUIT FARM. Fifty Acre bearing apple orchard, prime condition, good buildings, fine location. Could be good tourist or boarding house. Wonderful market on farm. Reason poor health, age. 1 mile to Highland, 10 minutes Poughkeepsie, 75 miles New York. WM. E. HART, Highland, New York.

FOR SALE: 300 ACRES WITH 75 ACRES FULL bearing apple orchard Beaver County, Pennsylvania. Owners ill. Wonderful opportunity. Brokers protected subject to prior sale. WRITE AMERICAN FRUIT GROWER, BOX 105, 1370 Ontario St., Cleveland 13, Ohio.

AN Opportunity to purchase a 40-acre fruit farm and equipment, 1565 Peach, 950 Apple trees, 2 acre grapes. Owner has had to move to Colorado for his health. ALFRED MEIZNER, Realtor, Oak Harbor, Ohio.

FOR SALE—66 ACRES—45 ACRES IN APPLES, 7 room modern house full basement. Hot water, furnace, storage 76-36 refrigeration, storage above basement 36-56 for crates and baskets. Packing house 32-50. Garage, swimming pool 55 ft. across. Reasons for selling will retire. If interested come and see it. CHARLES E. KIESER, Sr., Harpster, Ohio. RR.

CENTRAL ILLINOIS ORCHARD, 200 ACRES PRODucing trees. Three houses. All equipment included. Price $32,000. Write ROBERT P. TATE, Bloomington, Illinois.

FOR SALE OR LEASE ON YEARLY BASIS, 20½ acres Hartville muckland. Part of Minnie Taylor Farm. Perfect condition. Write to MINNIE TAYLOR FARM, Box 445, Hartville, Ohio.

POULTRY

MOTTLED HOUDANS, MY SPECIALTY. EGGS, Chicks, Stock. Circular. FRED BRENON, Box A, Watertown 15, N.Y.

PEAFOWL, SWANS, PHEASANTS, GUINEAS, DUCKS, Geese, Thirty Varieties Pigeons, Bantams. Stock, Eggs. JOHN HASS, Bettendorf, Iowa.

HELM'S PULLORUM PASSED CHICKS. FAMOUS for years. Egg Contest records over 300 eggs. Brown Leghorns holder three World Records. Crossbreeds, Turkeys, Brooding bulletins. ILLINOIS HATCHERY, Metropolis, Illinois.

RAISE TURKEYS THE NEW WAY. WRITE FOR FREE information explaining how to make up to $5,000 in your own backyard. Address: NATIONAL TURKEY INSTITUTE, Dept. 233, Columbus, Kansas.

TRADE MARKS

NATIONAL TRADE MARK COMPANY, MUNSEY Building, Washington, D. C.

WANTED TO BUY

WANTED—UNIMPROVED FARM. RATHER CHEAP. HERBERT AYER, Route 1, Newtown, Ohio.

FIFTEEN GALLON SPRAYER. SMALL HYDRAULIC Cider press. REA HOFF, Comanche, Texas.

WANTED: 200-300 Gal. Pressure Sprayer on Wheels. H. JESKE, 2041 Belle Plaine, Chicago 18, Illinois.

OLD GOLD WANTED—CASH SENT PROMPTLY FOR broken jewelry, spectacles, gold teeth, diamonds, watches, etc. Mail articles today or write for FREE shipping container. LOWE'S, Holland Bldg., St. Louis 1, Missouri.

WANTED TO BUY—15 GAL. HAND POWER SPRAYER. R. WAINWRIGHT, 4301 Kennedy, Cincinnati, Ohio.

A USED APPLE GRADER AROUND 100 BU. PER hour capacity. ELWOOD WAY, Port Matilda, Pa.

"That's Lem Perkins—the Flyin' Farmer—sez he hasta have top traction to git outa that pasture!"

Peaches, which were beginning to bloom as early as February 1 at Knoxville, have survived the ups and downs of temperature remarkably well during the last six weeks. In the Dayton-Sale Creek area, there is little damage to date in the main-crop Elberta and Brackett varieties. Main-crop peaches in middle and southwest Tennessee still have half their buds alive on good sites, enough for a full crop. The early varieties and northwest Tennessee orchards are even better. But most growers would feel more secure with varieties that would "sleep better."—*J. C. McDaniel, State Hort., State Capitol, Nashville 3.*

DELAWARE—On July 1, 1950, the Delaware State Apple Commission, created by an Act of the General Assembly, will be one year old. This act provides for a three-man commission appointed by the Governor from a list of apple growers submitted by the industry.

The present members of this commission are: W. H. Richter, Dover, chairman; Frank W. Richardson, Camden, secretary; and Warren C. Newton, Bridgeville.

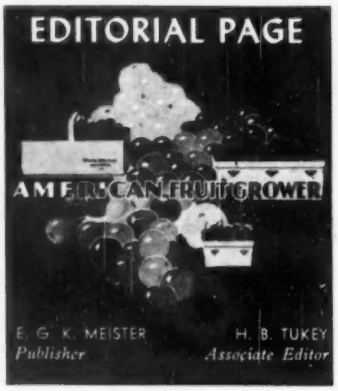
The act provides for the levying of a tax of one cent per bushel or two cents per 100 pounds of apples grown and packed in Delaware. The income from this tax will be returned to the commission each two years for the purpose of promoting the sale and consumption of Delaware apples. The commission will also carry on campaigns of education, advertising, publicity, sales promotion, and research.

It is their intent to support the National Apple Institute in its national advertising campaign and carry on local sales campaigns whenever necessary. During the first six months of its operatibn, the commission carried on considerable apple promotion in the State and also assisted growers in the sale of apples through the government purchase programs, export programs, and in other ways.

Several other promotion programs are planned in 1950. The commission will continue to support the National Apple Institute as it feels this organization is performing a great service to the apple industry.—*Robert F. Stevens, Ext. Hort., Newark.*

CALIFORNIA—J. A. Moffett, 69, of Lemon Cove, pioneer citrus grower and a vice-president of the California Fruit Growers Exchange before his retirement in 1949, died recently. Mr. Moffet was a native son of California. He planted his first citrus acreage in 1914.

Charles Edward Utt, 83, of Lemon Heights, for many years a director of the Exchange Lemon Products Company, died February 5. He, too, was a native of California.



Better Peaches

FOR THE past decade, there has been an active movement in the peach industry to ship riper peaches in packages better designed to protect the fruit against bruising and cutting.

The unripe peach has been jeeringly referred to as bullet-hard. Scores of surveys have shown that the housewife prefers "tree-ripened" peaches and will buy more of the riper fruit.

In many cases, the grower would like to give the housewife "tree-ripened" fruits but he is blocked by several important considerations. Some middlemen will accept only hard peaches, fearing that the fruit may ripen or rot before they can dispose of it. Some progressive growers have been penalized on price for attempting to do a better job with better containers and riper fruit, on the grounds that the fruit is over-ripe. The Trade just hasn't wanted it.

Further, the threat of brown rot in most seasons has made it imperative to get peaches off the trees as quickly as possible. A few hot days and the crop may be ruined. Probably the greatest progress towards "tree-ripened" fruit has been made in California where brown rot is not a problem and where State marketing laws are in force to raise the standards of maturity.

Happily, there are now two factors which should help to improve the quality of peaches to the consumer. One is the increased use of cold storage, rapid handling, and precooling, and the development of equipment designed to take the field heat out of peaches quickly and help eliminate the threat of brown rot. The hydrocooler has passed the experimental stage and is gradually being adopted by packing houses. The precooled and refrigerated truck is here.

Secondly, there is an increasing realization on the part of the grower that it is his job to educate the wholesale trade to improved fruit and to better handling methods. Growers must take the responsibility for an educational campaign aimed at the whole marketing and handling machinery or progress is blocked. With 90 or 100 million bushels of peaches in prospect one of these days, it is time to begin.

United Effort Pays Dividends

THE 1949 National Apple Week was a definite success and an improvement over that of the previous year," states the annual report of the National Apple Week Association. Judging by the amount of publicity received, which is listed in the report, this is an understatement.

The National Apple Week Association is sponsored by the various State apple commissions, regional apple institutes, horticultural societies, and the International Apple Association, which contribute financially to its support. In addition, individuals and firms may become members by paying an initial entrance fee of $10 and dues of $10 a year.

According to the annual report of the association, last year's National Apple Week celebration was given publicity in 20 national magazines as well as in a large number of daily newspapers. The radio also did its share. There was widespread and active participation, too, by companies and organizations in allied fields, including the chain stores, food distributing concerns, etc. Over 100 committees arranged local celebrations on a State and county basis.

Every apple grower should have a copy of this report, which may be obtained free by writing the National Apple Week Association, 154 East Avenue, Rochester 4, N.Y.

Fruit Production at a Glance

	1938-47	1948	USDA Mar. 1, Est. 1950
	Thousand Boxes		
Oranges			
Calif., all	48,894	38,910	36,600
Navels & Misc.	19,068	11,910	13,600
Valencias	29,826	25,000	23,000
Florida, all	39,940	58,300	62,000
Early & Mid-season	21,765	32,000	34,000
Valencias	18,875	26,300	28,000
Other States	4,760	4,410	3,055
Total Early & Midseason	43,701	47,260	49,575
Total Valencias	49,892	52,360	52,080
Tangerines	3,530	4,490	4,900
Grapefruit			
Florida	25,760	30,200	25,000
Texas	10,624	11,300	6,500
Other States	6,144	4,020	5,570
Lemons	13,184	9,930	11,500

Over-Production Vs. Under-Consumption

ADMITTEDLY, the human stomach will hold only so much food, and the nutritional requirements of a man have a level beyond which it is impractical to go.

Can, then, the per capita consumption of fruit be increased by advertising and merchandising?

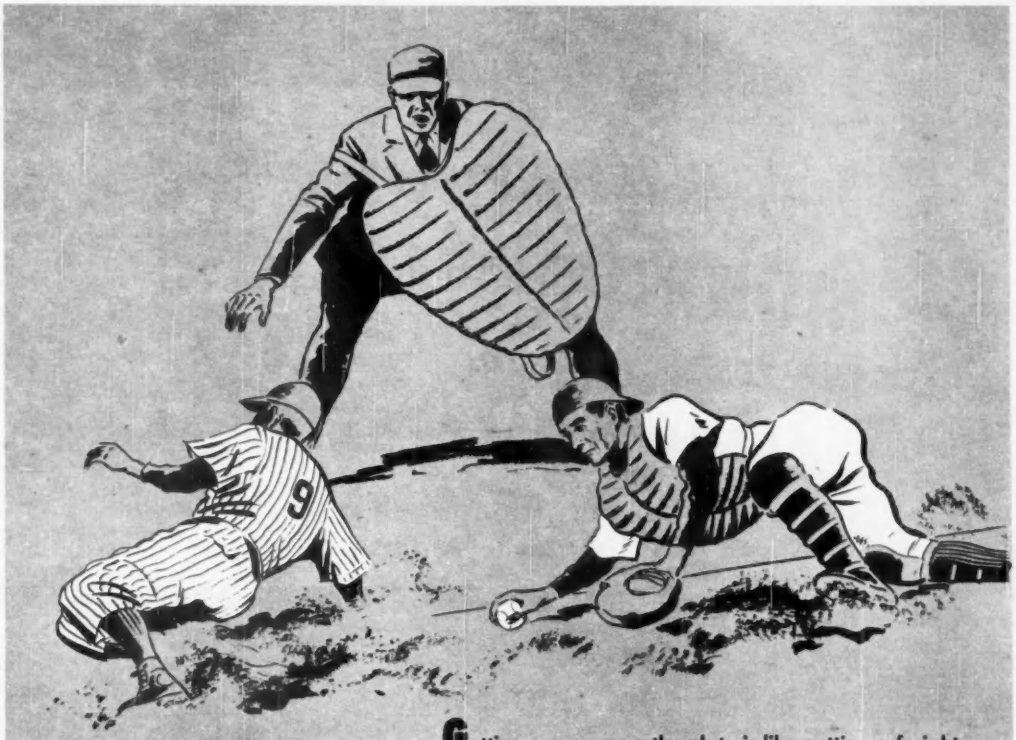
The California Fruit Growers Exchange speaks of 25 million boxes of oranges in 1915, 50 million in 1925, 100 million in 1935, and 200 million in 1945. And they show the steady decline in consumption of apples, potatoes, and other less-advertised products.

The per capita consumption of grapefruit declined the past year because of the freeze of January 31, 1949, in the Gulf States, which markedly reduced supplies. Immediately, the consumption of other fruits increased—just about enough to balance—indicating again that to increase the consumption of any food it becomes a question of keeping one item out and letting another in.

Activities of the United Fresh Fruit & Vegetable Association and the Research and Marketing Administration show that sales of fresh fruit can be increased through retailer education. Schools have been held for retailers on care and display of fresh fruits and vegetables. Retailers are shown how to trim the product, how to keep it fresh, how to display it most attractively, and otherwise how to appeal to the consumer. Preliminary results have reported up to 30 per cent increased sales as a result. On a national level, this could be of tremendous importance.

Not all the so-called Hope-Flannagan projects have been so successful. In fact, too many have been put into the hands of well-intentioned but unenlightened economists who think in terms of graphs and curves where the problem is one of down-to-earth commodity handling. The man who knows the commodity and how to handle it is frequently in a better position to serve than is the man who is more familiar with gold standards, foreign exchange, and trade balances. Yet, the commodity expert has been all but ignored. Sooner or later this should and will be changed. Combination of effort will better serve the industry and its problems.

Be that as it may, here is a project that seems to be "clicking." It points a way that may mean considerable to the fruit industry in the years immediately ahead.



Safe at home

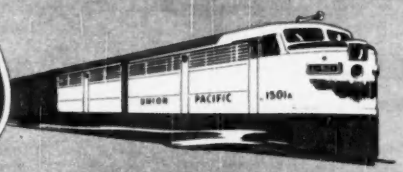
Getting a run across the plate is like getting a freight shipment to its destination safely and on time.

As in baseball, it takes organization and teamwork to get results. It takes a hard-hitting group of experienced men.

One example of teamwork is Union Pacific's high "batting average" for transportation of perishable commodities. During a long period of time the records show a remarkably high monthly average of on-time deliveries.

We won't be satisfied until all shippers who patronize our railroad can sincerely say "That Union Pacific is a great outfit."

UNION PACIFIC RAILROAD



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SPRAY MATERIALS

Maximum Deposits
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IT TAKES THE FULLEST measure of spray protection all season long to pay off in top grades at picking time. Getting this result means using spray materials which you can count on *for maximum deposits on plant surfaces* and *maximum insect kill—in every spray application!*

WITH ORCHARD BRAND products, you can be sure of getting this *full measure of protection* day in and day out.

THAT'S BECAUSE EACH General Chemical Spray Material has the important qualities of high deposit and maximum killing effectiveness built right into it . . . through extensive research . . . carefully controlled production . . . and thorough field testing. Only where products have this background can you be assured of high spray efficiency in your equipment and on your crop *every time.*

YES, THIS FULL MEASURE OF PROTECTION means *More* of the *"Money" Fruit* at picking time. So be sure—use Orchard Brand Spray Materials . . . first choice of commercial growers!

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(Parathion)

LEAD ARSENATE
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BHC Wettable Powder

Micro-Dritomic* Sulfur
(for apple scab)

Dritomic* Sulfur
(for peach brown rot)

Carbamate Fungicides

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